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Miles to go before Java meets promise

2- TO 4-YEAR WAIT TO FIX HOLES, PERFORMANCE

By Johanna Ambrosio
SAN FRANCISCO

SUN MICROSYSTEMS, INC.'S Java doesn't fully deliver on its promise of "write once, run anywhere" and probably won't for another two to four years, said corporate developers and users gathered at the JavaOne conference here last week.

But those same Java developers seemed determined to stick with the young development environment until it lives up to its billing.

"We're doing Java where it makes sense, but we're not doing everything in it," said Curtis Chambers, manager of distributed application architectures at The Home Depot, Inc. in Atlanta. "We're probably a couple of years off from telling our developers to use Java no matter what the platform or application."

Problem areas include some holes in how Java handles the development of cross-platform

Java, page 88

Engine flooded: GM's Y2K task may be too big

By Thomas Hoffman and Craig Stedman

DOES A COMPANY with an estimated 2 billion to 3 billion lines of software code and thousands of date-sensitive assembly machines in 50 countries have a prayer of meeting its year 2000 deadline?

That's the question facing the world's biggest company, General Motors Corp.

Ten days ago, GM notified the U.S. Securities and Exchange Commission that it expected to spend between $360 million and $500 million to fix its year 2000 problem. In January, the SEC issued guidelines for public companies to tell shareholders of year 2000 costs and risks.

Sources close to GM said Deloitte & Touche LLP did a technology assessment last spring to determine the scope of the prob-

GM, page 89

PC manager at center of $2M grocery scam

▸ *Inside job spotlights critical security threat*

By Kim S. Nash
COLORADO SPRINGS

At first, managers at the King Soopers supermarket chain suspected software bugs were causing the huge number of sales "voids" and other accounting anomalies.

So the corporate office repeatedly dispatched regional PC manager Jay Beaman — with his root system access in hand — to fix the problem.

But he was part of the problem, police now say.

Buried in a pile of affidavits and warrants is the tale of how Beaman and two head clerks allegedly stole more than $2 million — maybe much more — by manipulating computer records at King Soopers stores in Colorado.

PC manager, page 24

Are you consultant material?

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New Intel chips crank up speed

By April Jacobs

INTEL CORP. plans to raise the desktop performance bar 33% in two weeks via new desktop chips and chip set combinations due April 15.

The Santa Clara, Calif., chip maker will offer up a 100-MHz system bus and 350- and 400-MHz processors aimed at high-end PC users.

Sources said the company also plans to introduce more chips throughout the year, including the following:

- A mid-June rollout of cheap but powerful 266- and 300-MHz Pentium II processors,

Intel, page 16

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UP FRONT

Repeal this law

It's time to repeal Section 1706 of the tax code, and now may be the best chance in years to do it. Florida Rep. Connie Mack is about to file a bill to strike down the 12-year-old tax provision that has devastated the ranks of independent consultants and tied IS managers' hands in their struggle to cope with the skills shortage (see story, page 6).

Section 1706 basically makes it risky for IS organizations to hire independent computer contractors. If you bring in consultants and the IRS later decides they should have been full-time workers under 1706, you may have to pay large fines. The rules are so restrictive that some large IS organizations have simply sworn off hiring independent contractors, choosing the safer but more costly route of contracting with big integrators. It was big integrators, by the way, that supported 1706 in the first place.

1706 handcuffs IS managers who need all the tricks they can get.

Those rules actually made sense a few years back, when full-time employee ranks were being decimated by layoffs and 1706 offered a measure of job security. But the skills shortage is so acute today that no qualified technology professional needs to go without work for very long. At the same time, 1706 handcuffs IS managers who need all the tricks they can get to find skilled people. The rule works against the client and the customer. What kind of law is that?

Repealing 1706 now will allow the independent consulting industry to flourish and give IS the flexibility to hire people for point projects. Sure, some full-time employees may quit to pursue careers as independent contractors. But at least you'll be able to hire them back this time.

Would you hire more contract workers if you didn't fear the wrath of the IRS? Let me know at the E-mail address below.

Paul Gillin, *Editor*
Internet: *paul_gillin@cw.com*

THE FIFTH WAVE

"...and I'd also like to thank Doug Gretzel here for all his work in helping us develop our interactive, multimedia stapling division."

E-Mail Rich Tennant at thewave@tiac.net

Signs point to looser encryption rules

By Sharon Machlis

THE CLINTON administration may be trying to narrow the chasm between federal and corporate views on encryption exports, a move that could make it easier for global businesses to employ one encryption standard.

Those lobbying to ease restrictions aren't ready to say they have won or to predict what form a looser policy might take. But some are encouraged by recent signs, including the following:

- More strong encryption products finding their way overseas either through government licenses or legal loopholes, despite restrictions on selling such technology abroad.
- The Department of Justice's decision not to seek controls on domestic encryption sales.
- A recent letter from Vice President Al Gore endorsing negotiations that could lead to "additional steps to relax export controls" but still keep law enforcement needs in mind.

"I think there's something going on. It's a little early to declare victory," said Jim Bidzos, president and CEO of RSA Data Security, Inc., a Redwood City, Calif., supplier of a popular encryption algorithm.

"I think the administration honestly recognizes that the current government position is untenable," said Deborah Triant, president and CEO of Check Point Software Technologies Ltd. in Redwood City, Calif., a maker of security products such as firewalls. Triant is among a group of Silicon Valley executives that meets periodically with Gore on technology issues.

"Companies just have to get permission on a case-by-case basis. It's a bit of a pain, but it can be done," Triant said. "I think quietly they've been letting things happen, but that's not a long-term answer."

Current federal policy bars export of strong encryption products without plans for so-called key recovery, which enables law enforcement to gain access to decryption keys if needed in a criminal investigation. But there are now exceptions for financial institutions, and Bidzos said the definition of "financial" is broadening, so merchants abroad that use encryption for financial transactions now qualify.

U.S. industry representatives argue that restricting sales of American products won't thwart terrorists from using secure encryption because it is already available overseas. What it will do, they say, is kill off a market for U.S.-based companies and drive encryption expertise abroad.

The problem with current policy is that U.S. companies shipping to overseas offices isn't enough. Those offices also need their trading partners to use the same encryption methods, said Kelly Blough, director of government relations at Network Associates, Inc. in Santa Clara, Calif.

The company this month will sell strong encryption software abroad through a European subsidiary. The product, based on its Pretty Good Privacy algorithm, was developed in Europe.

NOT CONVINCED

Still, some lobbyists on the issue remain unconvinced that the administration is ready to change. "For the last few years they have been playing with this policy around the edges," said David Sobel at the Electronic Privacy Information Center in Washington. "It hasn't worked."

Many opponents of current encryption restrictions support the Security and Freedom through Encryption (SAFE) bill, introduced by Rep. Bob Goodlatte (R-Va.) and co-authored by Rep. Zoe Lofgren (D-Calif.).

SAFE has 250 co-sponsors in the House, and its backers hope the House will vote on it in May. It would bar domestic controls and allow exports if comparable software is available elsewhere.

"I think we're definitely making progress," Lofgren said. Although companies in her Silicon Valley district are dissatisfied with the time-consuming licensing process, "most of the people I've talked to in the Valley have had essentially positive responses from Commerce."

Goodlatte complained that export controls are really domestic controls, since the Internet is international and companies need one standard for conducting global business. "I don't see any real change in their policies," he said.

But others are more encouraged. "It does appear the message is softening," Blough said. □

RELATED LINKS

For these and other related links, go to:
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- The Electronic Privacy Papers: Documents on the Battle for Privacy in the Age of Surveillance
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- EPIC's Cryptography Policy page
  www.epic.org/crypto/
- Crypto.Com
  www.crypto.com/
- Video/audio archive of March 17 Senate judiciary subcommittee hearing "Privacy in the Digital Age: Encryption and Mandatory Access"
  http://civilliberty.miningco.com/msubencr.htm

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Ah, paradise!

On Guam, life living is easy. Except for the typhoons. And the earthquakes. Oh, and the bird-eating snakes. IS workers on this remote island (it's a seven-hour flight from Hawaii) develop self-reliance - and a good backup system.
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ROI aimed at costs, not competitiveness

By Thomas Hoffman

BUSINESSPEOPLE TALK about wielding technology as a competitive weapon. But CIOs more often use IT like a shield to deflect the angst of senior management about the high costs of deploying technology.

A study released last week by a division of Cambridge Technology Partners, Inc. showed that most technologists focus their return on investment (ROI) measurements against payback rather than strategic advantage (see chart below).

That's because ROI "is a very political process" in most organizations, said Paul McNabb, founder and president of Cambridge Information Network (CIN), the San Francisco-based division of Cambridge Technology Partners. The division surveyed 140 information technology executives worldwide at companies that have $5 million to $10 billion in sales.

ROI often is used on the front end "to get projects approved," but rarely are those figures followed up with measurements against actual deliverables, said Marney Peet, CIN's research director.

In those instances when ROI is remeasured, it is often conducted by the information systems department through "an honor system" with the business units, she said.

MEASURING UP

Can return on IT investments be effectively measured?

Base: 140 IT executives
Source: Cambridge Information Network, San Francisco

Indeed, cost cutting "is really the focus of [most] strategic initiatives, but it's not always the best way to view [ROI]," said Chris Rhoads, vice president of planning change initiative at MBNA America, a Wilmington, Del.-based bank.

MBNA tends to focus most of its IT return measurements against competitive advantage and other value-added metrics, Rhoads said. But she also said "qualitative" returns such as customer retention are difficult to measure.

Bristol-Myers' John Stevenson: Many variables can skew ROI measurements

Measuring ROI on the front and back ends of projects remains a sticky problem, executives said. The measurements can be "camouflaged" by factors that show up over the course of a project, such as a sudden increase in overhead or corporatewide staff reduction, said John G. Stevenson, vice president of information management at Bristol-Myers Squibb Co. in Hopewell, N.J. Stevenson also is president of the Society for Information Management, a Chicago-based user group for IS executives.

GAINING MOMENTUM

He and other IS executives said the competitive advantage argument is gaining strength among chief information officers and corporations, though the results might not show up in a survey.

"The majority of [technology] work is blocking and tackling for productivity and process improvement," which translates into cost cuts, said Jim Jones, managing director of the Information Management Forum. The forum is an Atlanta-based IS executive user group.

At Dollar Bank in Pittsburgh, the results of each IT-related project are analyzed from an income/expense standpoint, and the bank follows up on the results every six to 12 months to "modify direction in case we didn't meet our results," said Abraham Nader, senior vice president of IS at the bank.

Dollar Bank has been analyzing income and ROI results from an Internet banking system that was launched two months ago. "ROI isn't a political tool at Dollar Bank; it's a realistic tool," Nader said. "If we don't achieve results, we'll go back and do more analysis." □

Microsoft's Database Doesn't Run on Windows CE

Everyone knows that Microsoft's database doesn't run on large computers — enterprise servers. But did you know that it doesn't run on small computers — handheld PCs and palmtops — either? In contrast, Oracle runs on the largest servers — Oracle8™ — down to the smallest palmtops — Oracle Lite. Don't mistake Oracle Lite for Microsoft Access or some other loser database product. Oracle Lite has complete integrated Java stored procedures, comprehensive advanced bi-directional replication and it operates in less than 1 MB of memory.

	Oracle Lite	Microsoft SQL Desktop
Runs on Palmtops	**YES**	**No**
Runs on Handheld PCs	**YES**	**No**
Runs on NCs	**YES**	**No**
Supports Java	**YES**	**No**
Synchronizes Data Two Ways	**YES**	**No**
Supports Object and Relational Data	**YES**	**No**
Synchronizes via Wireless	**YES**	**No**
Supports Row-Level Locking	**YES**	**No**
Safe for Large-Scale Deployment	**YES**	**No**
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IT labor bias: Companies focus on high end . . .

▸ *Extent of the high-tech skills shortage questioned by workers and GAO*

By Tim Ouellette

A LOT OF EAGER job seekers are missing the gravy train brought on by the shortage of IT workers.

That's because the information technology skills shortfall is mostly in the high end, leaving those who have little experience or outdated skills out of the loop.

"There is a shortage at the very high end," said Dominique Black, CEO of Advanced Technology Staffing in Redwood Shores, Calif.

So although IT workers such as operations staffers and systems administrators can improve efficiency and lower costs, they aren't as strategic to a business's success, Black said.

Additionally, a Meta Group, Inc. study unveiled last week found that many companies are boosting salary premiums for experienced workers, hot skills and contractors (see related story below), sometimes at the expense of the workers who fill their low-end positions.

"Companies now either want people who have specific technical skills with a sense of business, or general technical backgrounds and specific business skills," said David Foote, a partner at Cromwell Foote Partners, Inc., a Stamford, Conn., career consultancy.

Positions in demand include project managers, World Wide Web developers, business/technology specialists and workers with multiyear experience in specific duties.

When a company finally made an offer — mainly because his Navy experience in medical technology matched the employer's expertise — Torres had to move his family to North Carolina.

Torres, like other entry-level IT workers, questions the extent of the IT skills shortage when their potential is ignored.

Meanwhile, the General Accounting Office, which is the investigative agency of the U.S. Congress, last week questioned the methods used by industry and government organizations to estimate the extent of the shortage.

As evidenced by Torres' experience, that focus on the high end doesn't just target recent graduates and low-end IT workers, but also experienced workers who may be considered too old or expensive to hire or retrain.

HEAT IS ON FOR DEGREES

Most IT positions require more than a quick certificate to land the job:

	Programmer	Systems analyst
Bachelor's degree	83% require	82% require
Program that lasts up to two years	12% allow	14% allow

Base: 450 IS managers

Source: Information Technology Association of America, Arlington, Va.

LAUGHING AT TRAINING

For example, James MacDonald, who describes himself as a "fortysomething" job hunter with junior-level Unix administration experience, couldn't land a job because companies were always looking for "a senior-level fill-in-the-blank," he said.

One company's recruiter even laughed at MacDonald when he asked about training, saying the company didn't bother to train new technical workers.

"Companies like this don't have a problem [with job openings], they are the problem," MacDonald said.

Such companies focus their recruiting efforts almost exclusively on experienced people, offering higher salaries and bonuses. But that practice won't benefit them in the long run, as firms realize that training inexperienced workers is an important way to find new IT talent, said Kerriann Vogel, an analyst at Meta Group in Stamford, Conn. □

Tax code changes

Congress is taking steps to simplify the tax laws imposed on independent computer consultants — and to make it easier for companies to hire those people for time-critical and short-staffed projects.

A spokesman for Sen. Connie Mack, R-Fla., last week confirmed that the senator is prepping legislation to repeal Section 1706 of the tax code.

Section 1706 requires that computer professionals fulfill a series of ambiguous rules before they can be classified as independent contractors. That leaves workers and companies open to audit by the Internal Revenue Service and additional taxes if the IRS determines that the contractor is actually a full employee.

"With today's skills shortage, it is more critical to remove Section 1706," said Paul Kostek, president of the Institute of Electrical and Electronics Engineers, Inc. "It will clarify everyone's role, because currently it can be a pain for individuals and the companies to manage independent contractors because of all the restrictions."

Industry groups have fought the provision since it was introduced in the 1986 tax legislation, said Max Steiner, spokesman for the National Association of Computer Consultant Businesses, based in Greensboro, N.C.

If successful, the repeal would free up more consultants to work independently. It also might make businesses more interested in hiring consultants to alleviate their IT staffing shortages, Steiner added. — Tim Ouellette

. . . and cut worker training benefits

▸ *Tuition payments, in-house classes on decline, two new studies show*

By Tim Ouellette

TRAINING MAY BE needed more than ever to keep scarce IT workers up-to-date on technology changes.

But don't expect all employers to foot the bill.

In fact, more than half of large information technology organizations don't offer tuition reimbursement or in-house training for IT workers, according to a new study by Meta Group, Inc. in Stamford, Conn. (see chart). The numbers reflect a major drop from last year. Another study, by Hay Group, Inc. in Philadelphia, produced similar results.

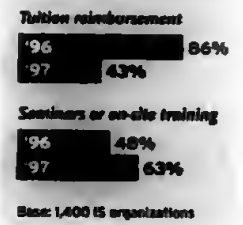
The cuts in training benefits to workers hurt retraining efforts worse than programs that train new workers, said Kerriann Vogel, an analyst at Meta Group. Those are workers who have been with a company for a few years and may need to update their certificates or expertise in a particular skill or move to a new skill.

Still, "people are willing to pay for their own training to get certified and get the premiums paid for certain hot skills," Vogel said.

For example, Steven Jenkins, a programmer at a software house in Dallas, paid for his own Windows NT training to get certified and help attract more work to the company, he said.

TRAIN DRAIN

What technical training benefits do you offer?



Base: 1,400 IS organizations

Source: Meta Group, Inc., Stamford, Conn.

CORPORATE REASONS

Why do some companies make employees pony up their own training dollars? Many of them are dipping into their training budgets to fund year 2000 and software rollout projects; some are spending more money on salaries and bonuses to get pretrained workers; and at some where jobs are unfilled because of the IT skills shortage, workers are tied to their desks handling a heavier load.

And with a large chunk of training budgets in the hands of business units instead of information systems, technical training can get shortchanged in the bargain.

Rather than building effective training programs, some corporate purchasing departments often focus on getting the most training for the dollar, said Lynne Hambleton, manager of learning systems at Xerox Corp. in Rochester, N.Y.

"They need to look at it from a value-add to find out if workers could come out more independent and valuable as a result of the training," Hambleton said.

But companies that skimp on training may pay for it in the long run.

"Training is a top retention vehicle, and career development is the No. 1 stay item for workers," said Linda Pittenger, a vice president and managing director of IT consulting at Hay Group.

That means companies that focus on reskilling are keeping valuable people on staff for future projects and attracting new workers, she added. □

Corrections

An item headlined "On the bright side" in our March 9 Year 2000 Scoreboard feature may have given readers the impression that Gartner Group, Inc.'s Compare Scale deals only with year 2000 compliance of government information systems around the world. In fact, Compare Score measures compliance of each country's private- and public-sector organizations.

quash

IRS takes another stab at modernization

By Matt Hamblen

THE INTERNAL Revenue Service last week embarked on what it called the world's largest systems integration effort, issuing a call for bidders to oversee an $8 billion, 15-year modernization project.

Coming two weeks before the April 15 tax filing deadline, the request for bids is just one of several major changes planned at the agency.

The Senate Finance Committee this week is expected to pass a sweeping IRS restructuring bill that would create a taxpayers' "bill of rights." The bill was designed to protect citizens from unjustified audits and set goals for advancing the use of technology.

The IRS also faces the need to increase electronic tax filings. And the agency must replace its chief information officer and scramble to fix its year 2000 bugs. Added to all that is the modernization program, which is huge, complex and vital, officials said.

Analysts said IRS Commissioner Charles Rossotti, appointed last November, can successfully launch the project because of his background as chairman of American Management Systems, Inc., a major systems consultancy in Fairfax, Va.

IRS Commissioner Charles Rossotti has the background to pull off a major modernization, analysts say

The IRS is seeking a prime systems contractor to oversee subcontractors during a 15-year process spelled out in a 1,681-page document. The award will be granted in December.

Two companies, Computer Sciences Corp. in El Segundo, Calif., and Lockheed Martin Corp. in Bethesda, Md., are vying for the prime contract, analysts said. Others are expected to apply before the June 1 deadline.

The cost of the IRS project is tough to pin down. In 1995, the agency estimated the project would cost $8 billion, but analysts said the scope of the work will push costs higher. Meanwhile, Congress has set aside $325 million for the project this year, and President Clinton has recommended spending another $323 million next year — enough to cover just over half of the project at level funding for 15 years.

Hank Philcox, who served as IRS CIO from 1990 to 1995, said the IRS request for proposals (RFP) represents a shift in favor of more outsourcing. "There's still concern about [citizens' tax records and] privacy when bringing in outsiders, but this RFP definitely represents a shift in thinking," Philcox said.

The idea of a partnership is unusual for the government and the IRS, said Linda Cohen, an analyst at Gartner Group, Inc. in Stamford, Conn. "The IRS has no clue of what to do about this modernization," she said.

Although modernization isn't the primary focus of the Senate taxpayer bill of rights proposal, last week's draft of the legislation sets 2007 as a deadline for the IRS to process 80% of its annual tax return filings electronically. About 15% of the 119 million individual filings last year were done electronically or by telephone.

MORE E-FILING

This tax season, electronic filing increased 23% compared with this time last year. Through March 13, 14.2 million returns were filed via computer. Another 4.5 million were filed by telephone, a 25% increase from last year.

IRS officials and observers said the increase is a hopeful sign. When taxpayers file by computer or phone, they cut out the need for data input of paper returns by IRS staff, IRS officials said. Error rates with computer filings are less than 1% and well below the 18% error rate for paper returns. □

Senate probes State Dept. security

By Laura DiDio

HOW SECURE are the State Department's computer networks? That's what the U.S. Senate's Government Affairs Committee would like to find out.

According to a recently released U.S. General Accounting Office report, the networks that transmit data between the U.S. Department of State and 250 embassies abroad were invaded by unidentified hackers.

Sen. Fred Thompson (R-Tenn.), who is chairman of the Government Affairs Committee, wants to hold hearings to find out who hacked the networks and what they got.

But the State Department moved quickly to classify portions of the report as "Secret" and "For Official Use Only," stymieing Thompson's plans at least temporarily.

"The security of the federal government's information technology systems is an issue of serious and growing concern to us all," Thompson said in a prepared statement.

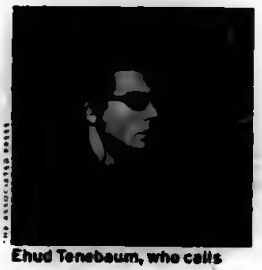
The State Department can keep the documents classified indefinitely. A State Department spokesman said the agency was investigating the situation but "had no further comment."

The most alarming incident in the GAO report, completed three weeks ago, was the discovery that an unknown intruder used the State Department's computer at an unnamed diplomatic post abroad last fall to break in to another post.

That caused the State Department to shut down the network for at least two weeks in October and transmit all sensitive information by courier.

Other network security breaches and warning signs cited in the report included the following:

- The discovery, following the March 1995 murders of two U.S. State Department employees in Pakistan, that their van's schedule — including departure time, route and passengers — was kept in an unclassified computer system.



Ehud Tenebaum, who calls himself "The Analyzer," was placed under house arrest in Israel last week in connection with Pentagon hack attacks

- A 1995 State Department Inspector General's audit criticizing its own department for "having no security plan to protect its unclassified but sensitive" computer systems.
- A 1986 audit of the U.S. Embassy in Prague found 15 computer terminals. However, 16 cables were connected to the network. The 16th cable went out of the building to the offices of the Czechoslovakian National Police next door.
- The State Department has been warned repeatedly by its auditors about employing foreign nationals to operate embassy computer systems.

But security analysts weren't surprised that the State Department is trying to keep the most sensitive portions of the GAO report classified.

"There's a real threat of copycat hack attacks," said Phillip Carden, managing consultant at Renaissance Worldwide, Inc., a consultancy in Hoboken, N.J. But Carden said the need to tightly control access to the GAO report doesn't mean the State Department shouldn't be scrutinized and audited.

"They should be scrutinized. And if it's found they haven't been effective, then it may be appropriate for the auditing body or process to be changed," Carden said.

Chris Klaus, chief technology officer at Internet Security Systems, Inc. in Atlanta, agreed. He said hackers all over the globe have turned network invasions into a sport.

In the past several months, hackers have invaded unclassified U.S. Department of Defense networks and universities. And a trio of Israeli teens led by Ehud Tenebaum, 18, who calls himself "The Analyzer," recently hacked into the systems of Knesset, Israel's parliament.

He also aided U.S. hackers in their penetration last month of Pentagon and NASA networks. The FBI called the latest attacks on unclassified Defense Department networks "the most organized ever."

"And it's going to get a lot worse if the government and commercial sector don't wake up and get serious about security. You don't have to be an expert hacker to crack someone's network. There are over 100 well-known hacker sites on the Internet that provide detailed accounts of how to hack just about any network," Klaus said.

A spokesman for Thompson said the Government Affairs Committee will continue to push for hearings. □

Compaq to unveil switches

By Bob Wallace

COMPAQ COMPUTER CORP. this week plans to follow PC chip vendor Intel Corp. into the burgeoning Gigabit Ethernet market.

Compaq plans to announce at least two switches and a server adapter card that support the 1G bit/sec. technology, said sources briefed by Compaq. The company already ships 100M bit/sec. Fast Ethernet products.

"Compaq is differentiating itself from internetworking vendors by being able to offer users everything they need to support networked applications from PCs to switches to servers — something a Cisco can't do," said one analyst who requested anonymity. "Compaq isn't competing solely on network plumbing because they realize that's a battle they can't win."

TWO VERSIONS

Compaq will unveil two Enterprise Switches. The higher-end version has 16 ports for 10M/100M bit/sec. connections and six Gigabit Ethernet ports. It will sell for roughly $23,000. The lower-end version has half as many ports and will sell for $18,000.

The switches were developed in conjunction with Extreme Networks, Inc. in Cupertino, Calif., which will manufacture them for Compaq, sources said.

Finally, Compaq will announce a Gigabit Ethernet adapter for Peripheral Component Interconnect bus-based servers it developed with Intel. Pricing wasn't available.

Intel detailed its own Gigabit Ethernet road map just weeks ago. A Compaq spokeswoman confirmed the specifics on the larger Enterprise Switch but declined to comment further. □

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Users cheer Ellison focus on applications

By Randy Weston

ORACLE CORP. CEO Larry Ellison grabbed the helm of his floundering applications business last week in a high-profile shift that users heartily approved.

"If he can bring that same vision to the application division [as he did to the database division], I say, 'Go for it, Larry,' " said Karen Gilbert, president of the independent Oracle Application User Group.

"Oracle has spent a lot of resources on new technology, World Wide Web-enabled applications and new applications," said Gary Payne, systems development group leader at Dunlop Tire Corp. in Buffalo, N.Y. "But where they need to concentrate is in enhancing functionality in the current applications. They really haven't done that in the last few years. By bringing Larry in, they might start addressing that."

The applications group accounts for 20% of Oracle's business. The group posted comparatively sluggish sales growth during the past two quarters — 7% and 30%, respectively. That was in marked contrast to the previous two quarters, in which had posted 60% and 100% sales growth rates.

Oracle doesn't break down its applications sales figures, but analyst Judith Hodges at International Data Corp. in Framingham, Mass., said annual sales in the database maker's applications division increased about 39% from 1996 to 1997. But at PeopleSoft, Inc., in Pleasanton, Calif., that annual growth rate was 76.2%, Hodges noted.

STEVE GOLDBERG

Analysts say Oracle needs to make use of CEO Larry Ellison without creating competing fiefdoms

Exact dollar figures aren't available yet, she said.

Another Oracle rival, SAP AG in Waldorf, Germany, also continued to gain ground quickly in client/server applications sales. For example, SAP's revenue in the past two quarters increased 82% and 62% over the similar quarters the year before.

GOT VISION?

"Oracle Applications desperately needs some new leadership and vision in the market," said Joshua Greenbaum, an analyst at Hurwitz Group, Inc. in Framingham. Ellison's arrival signals "the fear at Oracle that they are going to lose their position in the marketplace," he added.

Ellison's active role in the applications division will be "driving strategy and making the decisions where research and development will go," said Ray Lane, Oracle's president and chief operating officer.

Ellison historically has paid little attention to the applications group, spending most of his time boosting the database business or hyping network computers as an alternative to PCs.

Ellison is adding the focus on applications as they play increasingly important roles in corporations as the backbones of their computing environments.

Senior vice president Ron Wohl will continue to direct the applications group, specifically development of the back-office core transaction applications.

Senior vice president Nimish Mehta will head up a new division focused on front-office applications such as sales force automation and customer service, a division Ellison decided was needed to focus attention on front-office computing.

The two primarily will be responsible for making sure Ellison's vision is translated into products, Lane said. □

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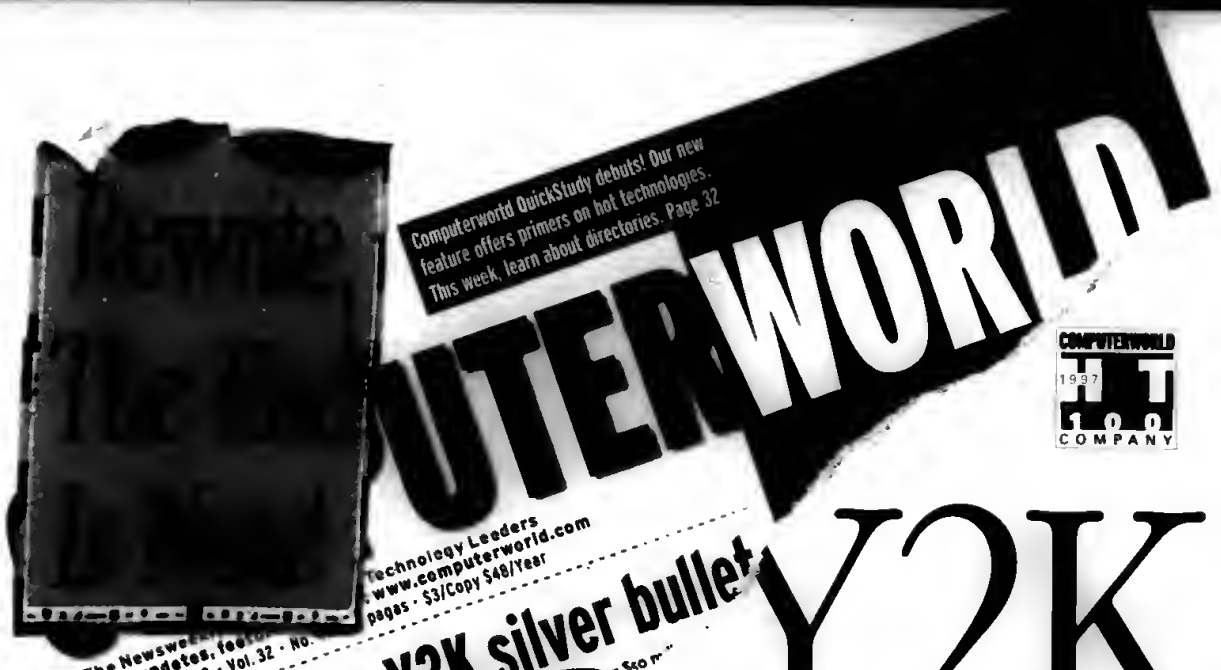

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(www.computerworld.com) March 30, 1998 Computerworld

FRANKLY SPEAKING

Sabotage is your friend

FRANK HAYES

LET US NOW praise sabotage.

No, I'm not kidding. At last week's JavaOne conference in San Francisco, users got a firsthand look at the benefits of sabotage in the war over Java between Sun and Microsoft.

I'm not talking about the Microsoft employees scrawling pro-Microsoft graffiti in chalk on the sidewalks outside the Sun conference hall. Or Microsoft manager Charles Fitzgerald inside buttonholing anyone he could to snarl about Sun.

Or Sun employees reenacting last month's pie in the face for Microsoft Chairman Bill Gates and blithely telling reporters, "We can't trust Microsoft to do anything."

Those stupid stunts and blatant badmouthing are petty stuff — amusing, in fact. But in the all-out, full-bore battle over Java, real, deadly serious sabotage has become the order of the day.

Consider the following:

- Sun launches Java and gains support by billing it as a way to torpedo Windows, Microsoft's cash cow.
- Microsoft licenses Java, then sabotages Java's cross-platform capabilities in its Internet Explorer Java implementation.

IS is reveling in the orgy of Java back-stabbing.

- Sun retaliates by developing an add-on component that sabotages Microsoft's version of Java, replacing it in Internet Explorer with Sun's version.

And on it goes. This isn't a clean, wholesome contest. It's the ugly face of competition run amok — down-and-dirty sabotage. These guys are actively undermining each other's products.

And guess what? Customers, especially corporate IS customers, are reveling in this orgy of back-stabbing. Why? Because it's giving them more choices, more cooperation and better product quality than they would ever get without this Machiavellian marketplace.

On Microsoft's side, that means a new version of its Visual J++ development tool, one that makes no pretense about supporting non-Windows applications. So users who want to just build Windows software with Java get better integration and performance.

On Sun's side (the same Sun that once planned to dictate Java's fate with an iron fist), that means a version of Java written as an ActiveX component. And another version that runs on top of plain-vanilla DOS instead of Windows 95 or NT. And a wider range of tools delivered faster than Sun has ever mustered for its Solaris.

Think that would have happened if Sun were merely playing a polite game of product Ping-Pong with Microsoft?

The cutthroat competition also has forced Sun to make nice with many of its erstwhile opponents. Last week, Sun struck a deal with Intel, which had squabbled with Sun for two years over Java's floating-point specifications. Sun also had to mollify IBM, once the target of Sun honcho Scott McNealy's most bitter barbs, and charm rival database vendors Oracle and Informix, and rival tool vendors Borland and Symantec.

Instead of dictating terms, McNealy, who once bragged that he doesn't fight fires, but sets them, must actually listen to his partners. And Sun can't juggle them all successfully — witness Hewlett-Packard's recent defection to the Microsoft camp.

To counter Microsoft's immense market leverage, Sun had to make its new Java database tools work with any database vendor's product, including Microsoft's. And that ActiveX version of Java had to be absolutely standard ActiveX, so Microsoft couldn't sabotage it.

All this is a bonanza for corporate IS shops that want to get the most from Java. They're in the driver's seat. No one else can dictate products and technologies and vendors. But that user nirvana wouldn't have been possible without the unrestrained, both-barrels-in-your-face combat between Sun and Microsoft. The benefits simply wouldn't have happened on their own. □

Hayes is Computerworld's staff columnist. His Internet address is frank_hayes@cw.com.

SHORTS

Intel founder drops CEO tag

Intel Corp. CEO Andy Grove, 61, last week announced that he will hand over day-to-day management of the Santa Clara, Calif., chip company to company president and chief operating officer Craig Barrett, 58. Grove has been CEO of Intel for 11 years and will remain the company's chairman.

SEC takes Shopping.com off-line

The Securities and Exchange Commission (SEC) last week halted stock trading for Internet retailer Shopping.com, Inc. and said the suspension will continue through April 6. The agency will probe what it called possible "manipulative conduct" by the Corona Del Mar, Calif., company. The agency offered no further details. A Shopping.com spokesman said the SEC's action is "primarily concerned with the trading actions of some company underwriters, not with the health of Shopping.com itself."

Virtual HR on the rise

Hate to get mired in human resources policies? You aren't alone. Employees at half of U.S. companies are avoiding the human resources department and conducting transactions over the World Wide Web, according to a survey of 466 global companies conducted by Watson Wyatt Worldwide in Bethesda, Md. That is more than double last year's figure of 27%. Use of interactive voice-response systems also increased, and use of interactive kiosks declined from 22% to 12%.

Powered-up 'net

Northern Telecom, with global headquarters in Canada, has announced a partnership with London-based United Utilities to give homes and businesses Internet access via electric power lines. The method will be tested by a half-dozen electricity providers in Europe and Asia. The joint venture of the two companies is called Nor.Web.

Iomega CEO zips out

Iomega Corp. last week announced that Kim B. Edwards resigned as president and CEO. No reasons for Edwards' departure were given, but the announcement came one week after the Roy, Utah, maker of high-capacity disk drives projected a first-quarter loss of between $10 million and $25 million. The loss was attributed to weak sales and an expensive marketing campaign.

Millennium bug bites

Some year 2000 failures are starting to crop up, according to a survey conducted last month by the Information Technology Association of America (ITAA). Of 450 respondents, 44% said their organizations have experienced millennium failures under operating conditions. Two-thirds of the respondents reported failures under test conditions. Also, 93% of respondents predicted that their organizations will be damaged by the millennium bug, according to the survey. The ITAA polled readers of its weekly "Year 2000 Outlook," and most of those surveyed don't work in information systems organizations.

Motorola, 3Com settle suit

Motorola, Inc. and 3Com Corp. last week settled a federal lawsuit, ending a battle over their respective high-speed modem technology patents. The companies agreed to a cross-licensing agreement for all of their analog modem patents, including 56K bit/sec. technology. Motorola also will be licensed to use any future patents relating to 56K bit/sec. modem technology issued to Brent Townshend. Last year, 3Com obtained exclusive rights to Townshend's patents, which were essential to making analog modems faster than 33.6K bit/sec.

Who gives the name?

A Geneva-based nonprofit group called the Internet Council of Registrars last week filed a complaint with the U.S. Department of Commerce criticizing the way the agency oversees the distribution of domain names. The council, which is made up of 87 international domain-name registrars, wants the U.S. to take a secondary role in the process. Currently Network Solutions, Inc. in Herndon, Va., assigns most domain names, under a charter from the federal government.

Fraud plea over domain names

A man trying to create an unofficial Internet naming service pleaded guilty to one count of computer fraud last week in federal court in New York. He was accused of "hijacking" thousands of users trying to reach the Web site for InterNIC, which administers domain names issued by Network Solutions. Authorities said Eugene Kashpureff, 33, of Belfair, Wash., rerouted user requests to his AlterNIC Web site during two periods last July.

SHORT TAKE PeopleSoft, Inc. in Pleasanton, Calif., today will officially launch Version 7.5 of its application package with more support for international currency, a demand planning module and other enhancements.

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"We use WebFOCUS and EDA middleware to publish up-to-the minute schedules from multiple dynamic databases."

Eduardo Fernandez, Managing Director of Information Services, RENFE

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RENFE is also developing Web transaction applications with Information Builders' Cactus application development environment. The new applications will allow customers to fill out forms on RENFE's Web site to plan trips, make reservations and purchase tickets.

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'I turned out to be pretty tough'

"Six months ago, I was miserable. Now, with the new products and alliances, I think we've turned the corner."

That was Eric Schmidt on Eric Schmidt, speaking to *Computerworld* at Novell's Brainshare conference in Salt Lake City last week. The Novell chairman and CEO was referring to the fact that he wasn't quite prepared for just how tough the job would be when he took over the helm at the struggling Provo, Utah, company last April 7.

Novell's Eric Schmidt

"It wasn't what I signed up for. The place was miserable internally because people were fighting. But now everything has come together, and Novell is now a tightly knit company. No more infighting," Schmidt said.

How did Schmidt turn things around?

"I turned out to be pretty tough. I established a set of rules, and we don't violate those rules. We operate ethically, and we make our commitments, and we honor them," Schmidt said. During the past two tumultuous years, Novell stopped focusing on its core NetWare operating system and consequently missed ship dates on key products such as NDS for Windows NT, he said.

But the biggest challenge is execution. Schmidt pledged that Novell will deliver its ZenWorks NDS-enabled management suite within the next two weeks and ship NetWare 5.0 this summer. "In the next six months, our biggest challenge is delivering products. Other than that, I think we've finally gotten the company back into alignment," Schmidt said. — Laura DiDio

Users: Put focus on 'mindshare'

▸ *Novell's on the upswing but still needs to prove NetWare's mettle vs. NT*

By Laura DiDio
SALT LAKE CITY

LOYAL NOVELL, INC. users came away from last week's Brainshare '98 conference here convinced that they witnessed tangible signs that the NetWare vendor has turned a corner.

The clearest evidence yet: a deal with Oracle Corp. to bundle a five-user version of the Oracle8 database free with NetWare 4.11 and 5.0.

Users and analysts said Novell still must sell itself to chief information officers who fear the company is on shaky ground and are eyeing Windows NT as an increasingly attractive alternative.

Despite that, observers said Novell retains a sizable user base. NetWare still commands about 50% of the installed base of network operating systems, despite being battered by Windows NT, according to International Data Corp. (IDC) in Framingham, Mass.

And users and analysts said Novell in the past year under CEO Eric Schmidt has engendered support by focusing on product delivery. Besides the Oracle deal, Novell announced the following:

"Windows NT isn't going to replace NetWare as our enterprise [network operating system] anytime soon."
– James Lasita, senior network engineer, Martin Marietta Technical Services, Inc.

- The price of Novell Directory Services (NDS) for Windows NT was cut to $16 per client, down from $65.
- Modesto, the code name for Novell's next-generation operating system, will natively support Intel Corp.'s 64-bit Merced chip when it ships next year.
- ConsoleOne, a 100% Java-based graphical user interface for NetWare and client desktops that lets users manage their networks via the Internet.

Marcus Senior, LAN and client development manager at Kaiser Foundation HealthPlan, Inc. in Silver Spring, Md., said the directory services for Windows NT is a progressive product that would help his company use both NT and NetWare. "Last year, Novell was confused and defensive. Now they're executing," Senior said.

Oswald Seerattan, a systems engineer at EDS, Inc., a network services company in Toronto, said he was impressed by ZenWorks, the new NDS-enabled desktop management suite. "ZenWorks could help me cut my management time in half by letting me administer desktops through NDS," Seerattan said.

Analysts credited Schmidt with the turnaround. They pointed out that Schmidt delivered the oft-delayed NDS for NT in December. He also cut costs with measures such as laying off 1,000 workers in the past eight months. And he brought Java-server spin-off Novonyx, Inc. back under Novell's wing.

Schmidt has "refocused the company," said Jamie Lewis, president of The Burton Group, a Salt Lake City consultancy. But Novell needs to erase "the perception among high-level corporate executives that their businesses must choose between NetWare and Windows NT," he said.

Jean Bozman, an analyst at IDC in Mountain View, Calif., said Novell has delivered crucial products on time and looks on target to meet a summer release of NetWare 5.0.

"Schmidt clearly understands the meat-and-potatoes issues affecting users. The challenge, now that Novell is back on track, is to boost its marketing profile to CEOs, CIOs and the chief technology officers who sign the purchasing checks," she said. □

Lower cost of ownership draws eyes to GroupWise

By Barb Cole-Gomolski

BETTER CALENDARING, improved Internet hooks and more advanced document management are on tap for Novell, Inc. GroupWise users.

At last week's Brainshare '98 in Salt Lake City, Novell released a beta version of GroupWise 5.5 that puts the product more on par with rivals Lotus Development Corp.'s Notes and Microsoft Corp.'s Exchange in the area of Internet support.

But users said the draw of GroupWise 5.5 will be low cost of ownership because of its built-in calendaring, document management features and tight integration with Novell Directory Services.

"We closely examined [the products on the market], and we felt that the amount of customization we'd do with Notes would be astronomical," said Jason McLellan, a team leader at Grand Rapids, Mich.-based Meijer, Inc.

The retailer is deploying 17,000 GroupWise seats. It passed over Exchange because "we felt that nobody had ever successfully deployed it in a WAN environment," he said.

A recent study of 300 companies by Gartner Group, Inc. in Stamford, Conn., showed that the total cost of ownership for GroupWise over a three-year period was $136 per user, compared with $486 for Exchange and $719 for Notes.

Some users said improvements beyond what Novell has planned for GroupWise 5.5 — such as the ability to access all the features of the GroupWise client from a World Wide Web browser — would make the software even more valuable.

"Better access to E-mail from the Web is the one thing we would upgrade for," said Ken Ainge, information systems manager at KTVX-TV in Salt Lake City.

Analysts said Novell still faces an uphill battle winning corporate electronic-mail business. Market share numbers reflect that big companies have been hesitant to bet on Novell for E-mail because they have been uncertain about Novell's future.

Eric Arnum, editor of "The Electronic Mail and Messaging Systems" newsletter in Washington, said there were 8.5 million GroupWise users at the end of 1997, compared with about 7 million a year earlier.

In contrast, market leader Lotus Notes added several million users during 1997 and now has an installed base of around 20 million users. Sales for Exchange hit about 10 million during the same period.

Still, user satisfaction and confidence have improved substantially in the past six months, Gartner analyst Tom Austin said.

Novell's position in the messaging market is improving, "but they are not out of the woods yet," Austin said. □

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IS IT WISE TO GO WITH GROUPWISE?

Pros:

- Includes built-in document management capabilities
- Lower cost of administration than Notes or Exchange, according to a recent Gartner Group report
- Tight integration with Novell Directory Services

Cons:

- Trails competitors in supporting Internet protocols
- Installed base is growing slowly compared with Notes and Exchange

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AMDAHL

Microsoft bans ISA slot

▸ *Technology called outdated, but costly to replace*

By April Jacobs
ORLANDO, FLA.

MICROSOFT CORP last week rolled out its blueprint for the PCs that users should see in 1999 and 2000. The PC 99 guideline calls for 300-MHz chips, 64M bytes of RAM and the end of the classic Industry Standard Architecture (ISA) expansion card slot.

The software vendor released the hardware developer guidelines at the annual Windows Hardware Engineering Conference (WinHEC) held here recently. In essence, WinHEC is a forum for Microsoft to urge hardware makers to produce systems that are compatible with its own software plans.

Corporate users, analysts and hardware makers said Microsoft is on target with the chip and memory requirements. But they questioned whether ISA can be banned as quickly as the company hopes.

Microsoft wants to move from the ISA bus to the Universal Serial Bus and IEEE 1394 technology. But many customers have a substantial investment in ISA cards, such as terminal emulation cards for PC access to legacy systems.

Even though the aging ISA technology lacks the manageability that could reduce total cost of ownership, analysts said replacing all the ISA cards is an up-front cost many users won't want to bear.

ALREADY PAID FOR

"ISA continues to hang around because there are a lot of cards out there that do things that people like. And even though you can do the same things with [Peripheral Component Interconnect] slots, they have already purchased ISA," said Roger Kay, an analyst at International Data Corp. (IDC) in Framingham, Mass.

But an ISA slot doesn't let network managers remotely analyze, configure, update and troubleshoot the cards inside.

Others said migrating from ISA is a positive move. A 300-MHz processor sounds like overkill for an average user, but more demanding applications may warrant such power by 1999, they said.

"A machine with 300 MHz today sounds great, but it may be on the [retail] close-out list by then," said David Greenberg, chief technology officer at Visteon Corp., in Maitland, Fla.

"As far as ISA [slots] go, they are a pain and it's time to get rid them," Greenberg said.

Ed Wilkins, campus information services manager at Thomson Financial Services, Inc. in Boston, said problems with Plug and Play, such as self-configuration conflicts, are making users wary of PCI-based slots — despite the fact that the new standard is supposed to benefit users.

"Plug and Play is great until you have a problem. Then it becomes shrug and pray," he said.

"So in the long run, I don't doubt that ISA should be eliminated," Wilkins said. "But first they need to sort out Plug-and-Play issues." □

Wanted: multimedia support

Microsoft's main agenda at this year's Windows Hardware Engineering Conference is to push the PC platform forward with advanced multimedia support, drivers for Windows NT, desktop management features and real Plug and Play.

Microsoft executives spent a lot of time and energy lecturing hardware developers on the need for additional and better drivers for its Windows NT operating system.

The company also asked developers to drop legacy technologies, such as the ISA bus, that don't support Plug and Play.

In its push for multimedia support, Microsoft demonstrated a three-dimensional graphics technology for World Wide Web sites, dubbed Chrome. The technology was designed to reduce download times for Web multimedia content.

Chrome, which Microsoft plans to release in the first quarter of 1999, will be available for Windows 98 and Windows NT 5.0. — April Jacobs

The PC 99 draft calls for hardware makers to support:

- Elimination of ISA slots and adoption of at least two Universal Serial Bus ports
- Network Adapter for business PCs
- Baseline of 300-MHz Pentium II processor with 256K Level 2 cache and 32M bytes of RAM

Intel chips boost performance

CONTINUED FROM PAGE 1

code-named Covington and Mendocino, respectively.

- A June rollout of a 400-MHz Pentium II chip.
- A 450-MHz Pentium II chip will surface later in the year for workstations and low-end servers. It will be based on Intel's Slot II architecture, which lets the cache equal the processor speed, thereby increasing performance.

But corporate acceptance of Intel's more glamorous offering for servers — sources it is code-named Profusion and is due in October — will depend on Microsoft Corp.'s ability to deliver its oft-delayed Windows NT 5.0 operating system with clustering capabilities.

That will bolster Intel's plan to deliver support for up to eight processors on a single server. Key clustering features — failover and redundancy — are part of Wolfpack, which is due with Windows NT 5.0 by year's end.

David Johnson, an information technology consultant at Coopers & Lybrand LLP in Hartford, Conn., said eight-way processing will be valuable for businesses that have CPU-intensive financial applications.

"But it will only be really valuable when we have the ability to use them with Wolfpack, because NT 4.0 only takes advantage of four processors at one time," Johnson said.

Vendors such as Hewlett-Packard, Co. offer proprietary eight-way servers, but they won't be fully supported until NT 5.0 is released, he said.

NEW TERRITORY

Jane Wright, an analyst at Datapro in Delran, N.J., said the combination of clustering and eight-way processing will put Intel in a high-performance space it hasn't yet been able to crack — the Unix/RISC market — but only at lower levels in the next year.

Tejas Vakil, vice president of server marketing at Dell Computer Corp. in Round Rock, Texas, said the PC and server company is committed to eight-way servers but isn't ready to announce anything because the servers would have to be congruent with NT to make them valuable to users.

IBM and Compaq Computer Corp. declined to comment.

Intel's desktop plans for sub-$1,000 PCs and workstations, due in June, drew mixed reviews from analysts and users.

For example, rollout plans for Covington and Mendocino may help Intel compete in the sub-$1,000 PC market with companies such as Advanced Micro Devices, Inc. and Cyrix Corp. But Intel's method, which is to provide a low-cache CPU, probably will leave OEMs to install the CPU themselves to avoid sending out boxes with degraded performance, said Roger Kay, an analyst at International Data Corp. in Framingham, Mass.

Michael Turner, associate technical analyst at Georgia-Pacific Corp. in Atlanta, said his applications don't require such powerful desktops, but NT clients may warrant them because they have a large footprint.

"Most businesses right now prefer to have their power on the workstation to cut down on network bandwidth and traffic issues," said Ed Wilkins, Boston campus information services manager at Thomson Financial Services, Inc. □

Microsoft's Allchin talks about Windows NT 4.0, 5.0

Jim Allchin, Microsoft Corp.'s executive vice president of the personal business systems and development group, spoke at WinHEC last week in Orlando, Fla., and answered a host of questions about Windows NT. He also met with Computerworld *senior writer April Jacobs to toss around Microsoft's NT strategies.*

Microsoft's Jim Allchin

CW: What are the most important issues for corporate PC buyers looking to support new applications?

ALLCHIN: Above everything else it is having enough memory. The life of a PC can be extended a relatively long time, but memory is the key limiting feature. Sixty-four megabytes is a good number today to think of and is what I would recommend if a corporate customer asked me.

CW: How is Microsoft furthering NT in the corporate market, and what issues are holding it back?

ALLCHIN: It's not a question of selling NT, but making clear the benefits. NT has easier driver support, and there will be even more spark and sizzle with Windows NT 5.0. Today, if you compare NT Workstation 4.0 with Windows 95 on a laptop, the experience isn't as good, and there have been a series of other things. We did send a pretty confusing message initially, and there were other areas of improvement that we needed to focus on, like Plug and Play, power management and missing device drivers. We are going to do the best we can. But I am very patient, and the base will migrate to it.

CW: One issue that seemed to keep coming up with regard to Windows NT was problems with the registry. What were those problems?

ALLCHIN: There are no problems with the Windows NT registry. What people may have been referring to were differences in the implementations [between Windows NT and Windows 95 and Windows 3.x]. And where applications are stored in the registry is different.

And there are applications that may need to be converted. But when you install NT 5.0, it will tell you if you are going to be successful. □

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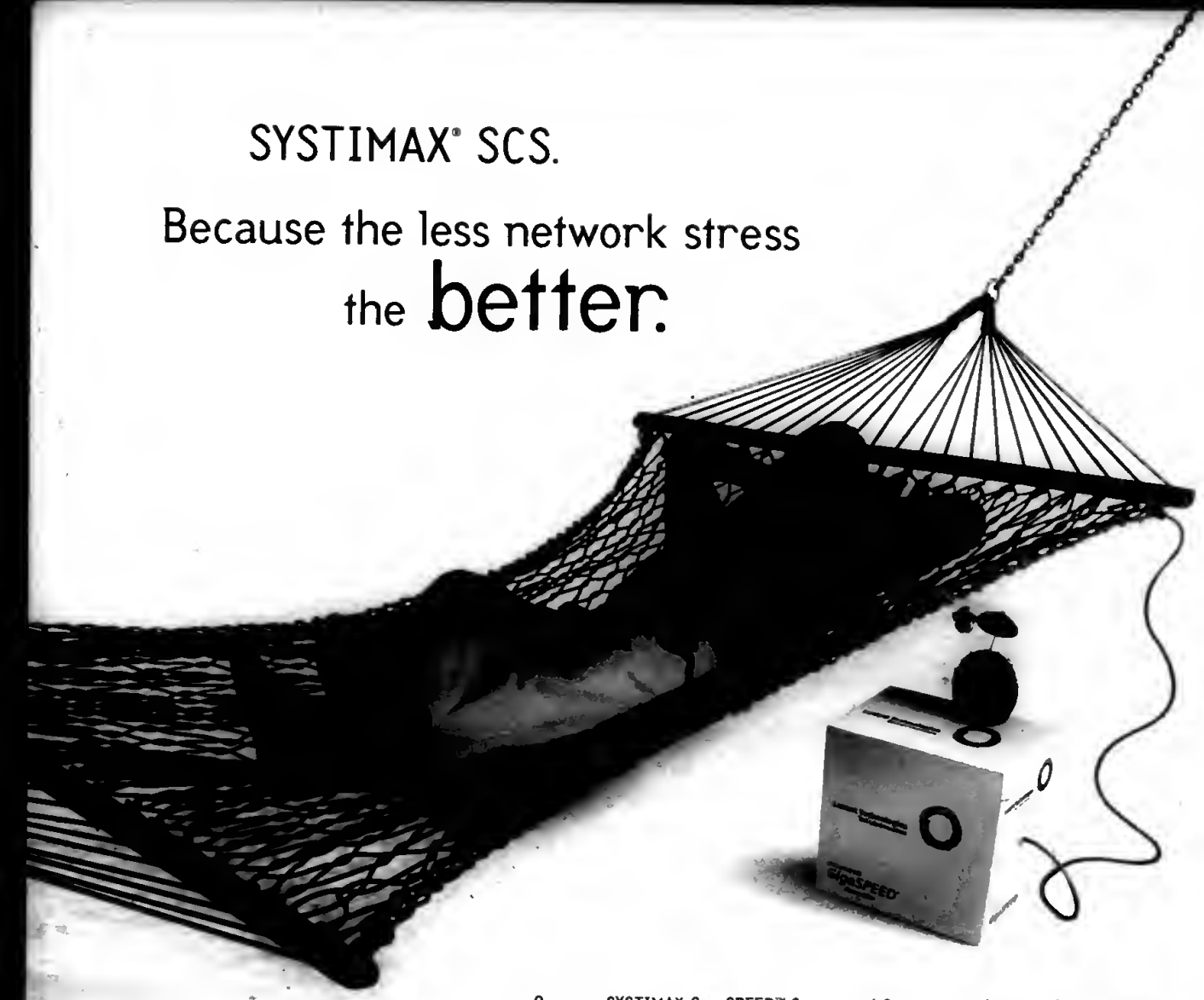

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Microsoft

Boot camps drill tech, business skills

▸ Users find they cut job assimilation time, build teamwork skills

By Tim Ouellette

THE FEW. The proud. The IS team.

That's what a growing number of companies are looking to build when they put their best and brightest IS recruits through newly developed "IS boot camps" that preach both technical and business savvy.

The information systems boot camps are a departure from technical classroom training methods and basic corporate orientation programs, said Christianne Moretti, an information technology training analyst at International Data Corp. in Framingham, Mass.

Syntel instructor Linda James discusses year 2000 issues with students at the company's facilities in Troy, Mich.

CONSENSUS-BUILDING

The camps typically are designed to help IS workers bring business understanding, teamwork and communications skills to the table, Moretti said.

The camps also go beyond the topics covered by technology-specific boot camps that have popped up among training companies in recent years. They cover topics such as Java, World Wide Web surfing and even CEO computer education.

"We are really looking to groom our future technology and business unit leaders," said Jay Clark, vice president of global services at Syntel, Inc., a systems integrator in Troy, Mich. "Our intent is to put them in a pressure environment, and we end up with some very sharp people."

Syntel's eight-week Technical Professional Development boot camp grills recruits not only on Cobol and DB2 programming (for Syntel's many year 2000 service contracts), but also on Syntel's business focus, corporate cultural values and customer satisfaction issues.

Syntel graduated 100 recruits last year and expects to put another 150 staffers through the sessions this year.

"I think it is good preparation — more of what you really need to get the job done," said Rodney Jackson, a Syntel programmer/analyst who works at Ford Motor Co. in Detroit.

PROJECT TRAINING

For the past year, Williams Cos., an energy company in Tulsa, Okla., has run IS workers through a six-week boot camp. About 50 workers have graduated since the camp's inception. Eight to 12 people attend each session.

Camp recruits must work in teams to complete major projects that run the gamut of traditional project hurdles — customer meetings, negotiations over the scope of the project and midstream changes in project parameters, said Roger Cude, Williams' director of training services.

Results are still coming in, but Cude said the boot camp has cut job assimilation times from a typical five months to two months, thanks to improved teamwork skills and business understanding.

To be most effective, the companies that run IS boot camps target select recruits with some previous IT experience in school or work.

For example, Syntel graduate Matt Rohlander said his experience as a physics teacher and self-taught C programmer was a good fit with the rigors of the boot camp.

Now he analyzes new code on a database conversion project at Dayton Hudson Corp. in Minneapolis.

But one thing may hold back some companies from setting up their own boot camps. Such intensive training is expensive, and specific monetary gains from the programs haven't been seen yet, Moretti said.

To avoid hiring and supporting full-time instructors, some companies may outsource boot camps to consulting firms such as Cambridge Technology Partners, which operates Cambridge Boot Camp.

And Williams Cos. is readying a plan to pay for the program while mentoring its boot campers. Starting this spring, new graduates will partner with outside consultants who already are working on projects at Williams.

By using its own people on an outsourced project, Williams will reduce the contract price and can use the savings to offset the boot-camp costs, Cude said. □

Targeted pricing not a probable development

By Sharon Machlis

ELECTRONIC COMMERCE

WILL THE DAY come when Web sites know so much about you that they show you prices based on what they think you would be willing to pay?

Buried in a recent international report on electronic commerce was this intriguing nugget: "The online environment may provide merchants with information about consumers via devices such as 'cookies' or one-to-one marketing, which . . . [can] enable merchants to charge different prices to different consumers for the same product."

That is, someday your World Wide Web site might track how much each surfer has been willing to pay for various goods and then post prices accordingly, the Paris-based Organisation for Economic Co-operation and Development concluded last month.

But privacy advocates aren't the only ones likely to howl about using consumer data that way. "I think that's awesomely abusive of your customer base," said Craig Winn, CEO of Value America, an Internet store.

Some industries already use computer technology to charge different prices for the same product. The airline industry, for example, has long employed "yield management," sophisticated programming that determines whether to charge vacationers $199 and business travelers 10 times that for seats on the same flights. But those prices are set based on what you do — how far in advance you purchase and how long you stay — not on who you are.

Kate Delhagen, an analyst who covers online retailing at Forrester Research, Inc. in Cambridge, Mass., said "there would be pandemonium" if a retailer tried posting different prices based on a surfer's demographics, because such tactics are sure to be uncovered.

That brings up another pitfall: Some enterprising hackers would likely discover — and post — how to enter such sites looking like a buyer who needs the absolute lowest prices. □

Feds urged to speed up Y2K fixes

By Matt Hamblen
WASHINGTON

FEDERAL AGENCIES need to hasten their year 2000 fixes because they risk losing key managers and personnel to the private sector, according to recent testimony at a congressional hearing.

Year 2000 workers will be lured away to private-sector jobs by higher pay now that Cobol programmers earn $100,000 or more per year outside government, said Michael P. Harden, president of Century Technology Services, Inc., a consultancy in McLean, Va.

TRIPLE PAY

Private-sector salaries for year 2000 work can be triple what the government pays, he said.

Harden told a joint hearing of two subcommittees of the U.S. House of Representatives that if the year 2000 work is speeded up and done soon, it will be cheaper than if it is delayed until late 1999. And he urged higher pay for government workers.

Recently, four high-level civilian personnel involved in year 2000 work at the Department of Defense announced they are accepting early retirement offers as part of the department's restructuring and downsizing. A spokeswoman for the Pentagon said the departures wouldn't harm the agency's year 2000 effort.

> At the current pace it is clear that not all mission-critical systems will be fixed in time
> — GAO

One of the four workers, Cynthia Rand, said in an interview she isn't sure whether she will take work in a year 2000 job in the private sector. She said she left the Pentagon because of a $25,000 buyout offer and the chance to earn her pension much earlier than if she had stayed until her originally scheduled retirement date. Rand said the four departures "don't leave [the Pentagon] in the lurch, because you have so many people here working on year 2000."

Still, Rep. Stephen Horn, R-Calif., issued a statement early this month calling the departures "disturbing."

Clinton administration officials, including officials at the U.S. Department of the Treasury and millennium czar John Koskinen, said they knew of no current personnel shortages in federal agencies for year 2000 work. Koskinen said he will monitor the situation.

Even if departures don't become a problem, Congress's investigative agency, the U.S. General Accounting Office, warned that "at the current pace, it is clear that not all mission-critical systems will be fixed in time."

But Koskinen said he isn't ready to concede that any of the 8,000 critical systems won't be ready in time. □

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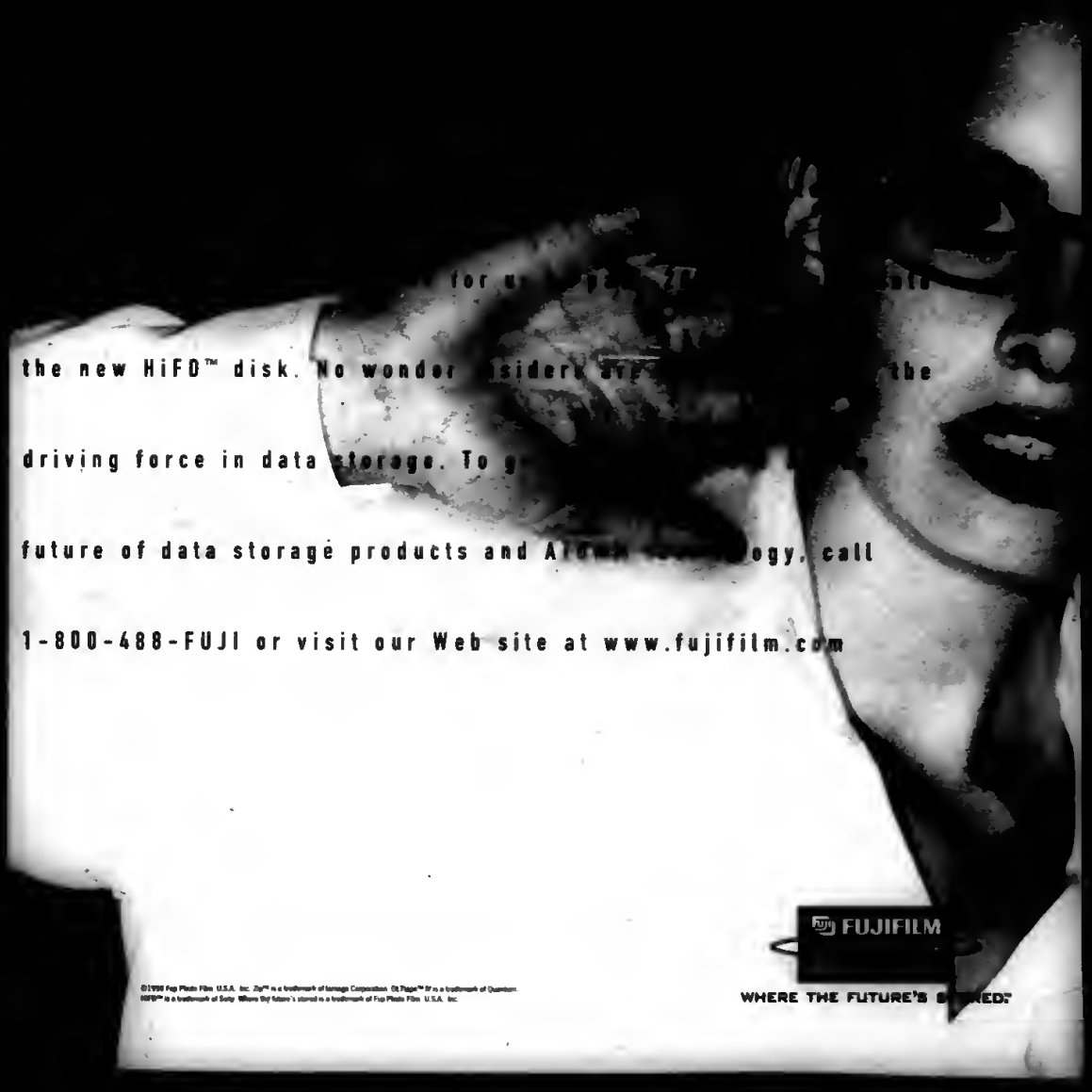
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PC manager charged in $2M scam

BY THE NUMBERS

2, 2, 19: Years, months and days of the investigation

35: Search warrants issued

90: Witness interviews conducted

$400: Cost for police to photocopy King Soopers internal store reports

600: Pages in final police report

21: Cars suspects David Heinke and Jay Beaman bought and sold during the years of the alleged embezzlement

$691,498: Traceable spending by David Heinke, 1993 to 1996

$24,591: Heinke's average annual salary, 1993 to 1995

$25,084: Average per capita income in Colorado

Sources: Colorado Springs Police Department, The Gazette research

THE ENEMY WITHIN

1. Workplace violence
2. Employee theft
3. Ethical business practices
4. Careless employee selection
5. Poor management

1. Employee theft
2. Workplace violence
3. Fraud, white-collar crime
4. Careless employee selection
5. Hardware and software theft

WITHOUT A TRACE

Suspect a crime?

Here are some tips on how to handle an insider computer crime and make a better case for the prosecution.

- Call police immediately. Every day that internal security tries to solve or stop the crime means more evidence gets tainted or destroyed.
- Tell employees not to erase, overwrite or destroy electronic or paper files.
- Let the cops do their jobs. Be mindful that a police investigation requires the time and energy of company staff, from worker-bees to senior executives — perhaps for many months. Cooperate.
- Quantify damages. Prosecutors don't like cases without a clear idea of the victim's suffering. And some computer crime laws require a certain level of financial damages to warrant prosecution as a felony. Colorado law, for example, requires a loss of at least $15,000 for qualification as a felony. Anything less is a misdemeanor, which carries far less severe penalties.

— Kim S. Nash

PC manager charged in $2M scam

CONTINUED FROM PAGE 1

Cases such as this give security managers the creeps. They say employee theft, not outside hackers, is the No. 1 corporate security threat (see chart).

Insider crime is especially troublesome when it involves information systems professionals, given their virtually unlimited access to computer systems and data.

The threat is real. An exclusive *Computerworld* poll of 104 businesses last fall uncovered some disturbing IS misdeeds, including 19 reported cases of theft or fraud and 13 computer security breaches by internal IS staffers [CW, Oct. 27].

THE ENEMY WITHIN

Employee theft has overtaken workplace violence as the top corporate security concern, while fraud and white-collar crime have rocketed up from seventh place to third.

RANKING POTENTIAL SECURITY THREATS

1997	1998
1 Workplace violence	1 Employee theft
2 Employee theft	2 Workplace violence
3 Ethical business conduct	3 Fraud, white-collar crime
4 Careless employee selection	4 Careless employee selection
5 Crisis management	5 Hardware and software theft

Base: 1997 survey, 147 corporate security directors at Fortune 1,000 companies; 1998 survey, 137 corporate security directors at Fortune 1,000 companies

Source: Pinkerton's, Inc., Emma, Carl

Earlier this month, the Colorado Springs Police Department arrested Beaman, the PC manager. Head clerks David Heinke and David Selaya were arrested before that. All the suspects are charged with conspiracy, computer crime and felony theft, which together carry maximum penalties of 13 years, six months in jail and $850,000 in fines. All are out on bond.

If it took police more than two years to nail them down, it will take some doing to explain the complexities of Case No. 95-44423 to a jury, said detective Tony Erickson, lead investigator.

With its wide streets and wider skies, Colorado Springs is a town where, most Sundays, people crowd into Wal-Mart after church to buy bedsheets and discount macaroni. The top employers of the second-largest city in the state are defense contractors and tourism companies.

"There are so many methods they had of taking money. You have all the computer aspects and the accounting aspects," 33-year-old Erickson said, shaking his head. "This is going to be a difficult case to prosecute."

But King Soopers, which is owned by $27 billion supermarket giant Kroger Co. in Cincinnati, plans to do just that, a store official vowed.

Heinke, Beaman and their lawyers declined to comment. Neither Selaya nor his lawyer could be reached. But interviews with some King Soopers people involved and a study of case documents, which include notes from 90 police interviews, shed light on the intricate, methodical three-year heist.

"This was the hardest case I've ever had. I feel I can investigate anything after this," said Erickson, a nine-year police department veteran.

The tale is indeed complicated, with at least nine revolving schemes to cook computer records and create cash for the taking from 1993 through 1995.

But it is simple, too, in the unraveling.

A motive was certainly present: Police said Beaman, 35, Heinke, 26, and Selaya, 27, had all filed personal bankruptcy papers before the thefts started.

Then greed and ego apparently emerged.

While the embezzlement was going on at King Soopers, police said, the suspects took a lot of trips, bought a lot of cars and flashed a lot of cash — $10,000 and even $20,000 wads. They skied in Utah, gambled in Las Vegas and hunted in Alaska. The vanity plates on Heinke's red Dodge Viper — one of only two registered in Colorado at the time — read, "BYBYCOP."

All this while the top salary any of the three earned at the time was Selaya's $32,582.

"They weren't smart about covering their tracks," Erickson said. "They were real smart with the computer system."

King Soopers' 1992-93 migration from antiquated Data General Corp. hardware and software to IBM PCs may inadvertently have provided an opportunity for theft.

Few managers were well-trained in the new system, so they relied heavily on Beaman's PC expertise, Erickson said.

Police contend that Beaman tampered with the bar-code pricing system to overcharge customers, then Heinke and Selaya skimmed the difference out of cash registers after closing.

In addition, police said, the group would void entire customer sales and pocket the cash. The biggest single week in voids: $219,305.11. The trio also rang in thousands of coupons per day, then took that money out of cash drawers over the course of several months. The biggest one-week coupon tally: $1.18 million.

WITHOUT A TRACE

It is impossible to calculate all the embezzled funds because some methods are untraceable, such as overcharging shoppers. Plus, King Soopers' IS and accounting procedures actually made it harder to track and prove fraud. For example, some backup files were overwritten after just 60 days, erasing any chance of a complete log of all store activities going back more than two months.

In one particularly lucrative scheme, outlined in a 600-page police report, Beaman allegedly jiggered the PC system so sales of certain items were funneled to a fake inventory category.

For example, a cashier would slide a gallon of milk across a scanner and a price would flash for the customer. It seemed normal. But behind the scenes, the milk purchase was placed in a dummy account.

At the end of the day, Heinke or Selaya allegedly would steal right from the registers the amount of money recorded in the bogus category. Beaman would later erase the category from sales reports, according to Erickson.

Because of the siphoned cash and fake accounts, the official records made it seem as if no one had bought any dairy products at Heinke's store for 18 months. "There's no telling how much they made from that one," Erickson said.

Ron Nissen, Beaman's boss, acknowledged in a police interview that he never checked Beaman's work. Nissen said he would "take at face value" Beaman's claims that he had fixed alleged computer problems at Heinke's and Selaya's stores.

Dave Savage, vice president of retail operations at the supermarket's Denver headquarters, declined to say whether King Soopers has changed audit procedures or other personnel checks and balances to guard against future similar thefts.

But new computer security measures include monitoring of log-ons, he said.

King Soopers' internal security managers tried unsuccessfully to solve the problem themselves before calling police in 1995. When security got too close, the trio would switch theft methods and find fellow employees willing to cover for them, police documents said.

Had store officials called police when they first suspected theft in 1994, they might have stopped losses at less than $1 million, Erickson speculated.

The $2 million estimated loss comes from an analysis of bank, motor vehicle, gambling, credit-card and other records Erickson gathered on the suspects, as well as an after-the-fact study of those King Soopers records that could be gathered.

"There's money spent [in cash] that I can't prove," Erickson said, adding that he believes the men still keep cash stashes.

Compiling evidence was a laborious process that came on top of Erickson's already full caseload. Fellow detectives called him "Nowhere Man" for a solid year because they didn't think he could prove the case.

"When I first entered the detective bureau, I used to dream of getting a case to bring attention," he said. Now he isn't so enthused. "It was maddening. I need to move on with my life."

Beaman, meanwhile, was slated for his first court appearance late last week.

Selaya is due for a preliminary hearing April 28, and Heinke awaits a May 4 trial. □

BY THE NUMBERS

PHOTO BY BOB S. MARK; COLLAGE BY LARRY GORDON/FOTOFOR-HIRED

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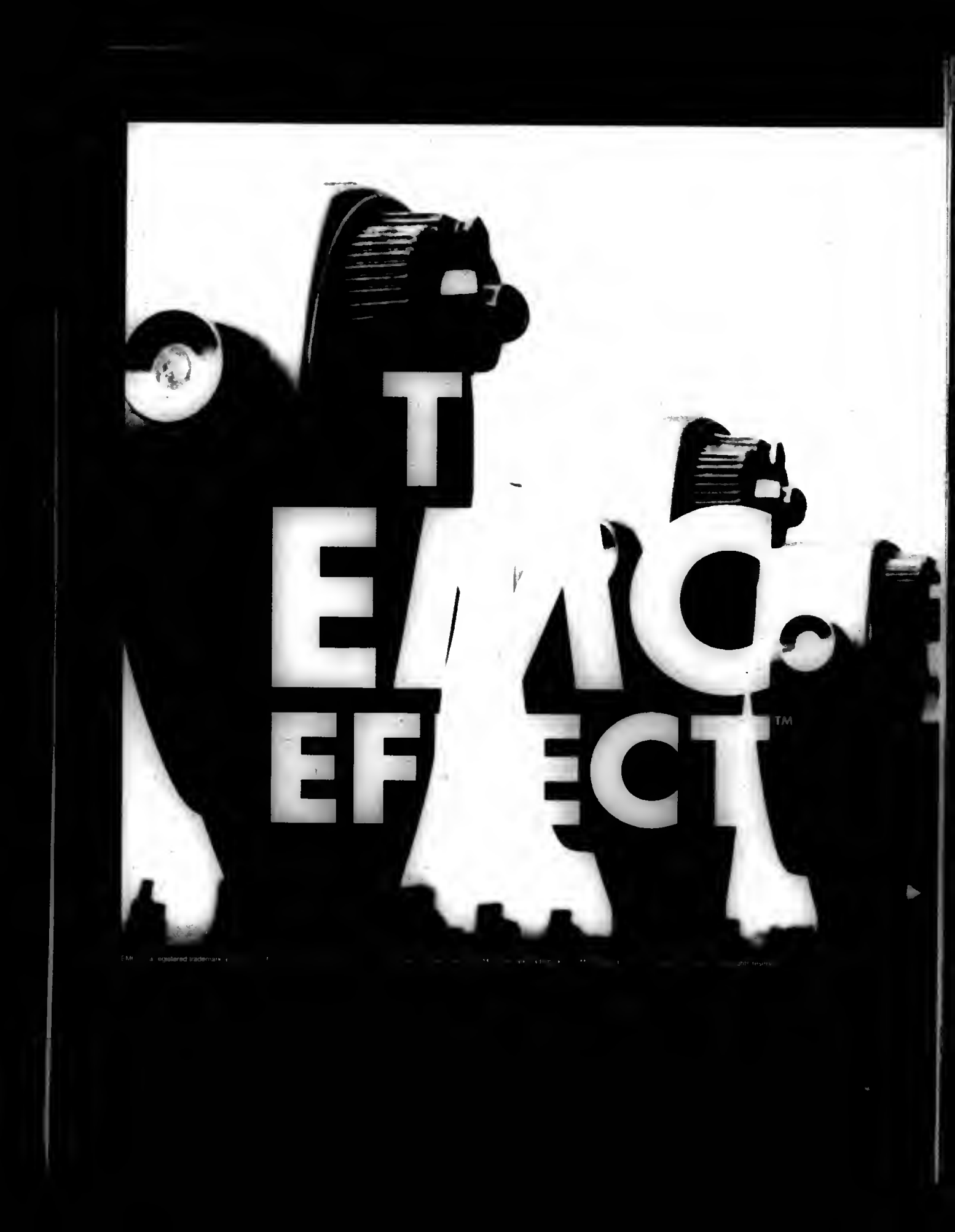
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Y2k: Turning the risks into a hard reality

▸ *Poll results show millennium threat still isn't taken seriously by management*

By Thomas Hoffman
NEW YORK

JUST 22 MONTHS before 2000 begins, millennium project managers are still struggling to figure out how to get CEOs and other top executives to provide leadership on fixing the year 2000 problem.

Only one in five organizations has launched a full-fledged strategy for achieving year 2000 compliance, and only one in three companies has a detailed plan in place, according to a recent Cap Gemini America survey of 108 information technology officers.

Perhaps the most effective way to get the millennium message across to senior executives, said seasoned information systems veterans, is to scare the pants off them.

For example, inform senior management that insurance for corporate directors and officers won't cover their tails if the company's systems fail and shareholders sue for losses suffered. If such lawsuits occur, the personal fortunes of corporate directors and officers will be at risk, legal experts say.

"When CEOs and officers hear that, they get really scared," said Stephanie Moore, an analyst at Giga Information Group in Stamford, Conn.

GETTING THE BALL ROLLING

Moore suggested adding internal accountants to millennium project teams. She said they are skilled at risk assessment and often have more clout with senior management than do technologists.

Says she is surprised by the lack of communication of Y2k risks to management

Another technique, said attendees at a Software Productivity Group year 2000 conference here two weeks ago, is to create a business risk assessment matrix that illustrates how much money the company would lose if a key manufacturing system went down for a day or a week.

With time slipping away, "I'm surprised by the number of people who still ask me" how to communicate the business risks of the millennium problem to senior management, said Irene Dec, Prudential Insurance Company of America's year 2000 program manager in Roseland, N.J., and a frequent speaker on the year 2000 rubber-chicken circuit.

Dec hasn't had those problems at Prudential because the company's tech-savvy Chairman and CEO Art Ryan was once the chief information officer at The Chase Manhattan Bank Corp.

Millennium project managers need to be candid with senior management and remind them that IS departments "are not real good at delivering [IT projects] on time," said Peter de Jager, a prominent year 2000 consultant in Brampton, Ontario. □

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QUICK STUDY

Hot trends & technologies in brief

Voice over data networks

DEFINITION: With voice over data networks, sound is transmitted over almost any type of network other than a traditional voice network, usually known as the public switched telephone network. Data networks that can accommodate voice include Asynchronous Transfer Mode backbones, frame-relay networks and the Internet. With the TCP/IP protocol, voice can be sent over LANs and WANs as well. Nearly all the attention in recent years has focused on voice over frame relay or the Internet Protocol.

Stan Welland, director of the Global Technology Infrastructure Division of Citibank in New York, tells *Computerworld* why his company has chosen not to run voice over its data networks, at least for now:

Q: ***Citibank is planning a frame-relay network, to be used in 98 countries, that will be managed by AT&T Corp. Do you have plans to run voice over it?***

A: **We don't anticipate voice, at least initially. Today we're focused on running the data on the network.**

Q: ***Is it a quality issue or an economics issue that keeps you from running voice over frame relay?***

A: **The economics. If you're a large corporation in North America, you know what traditional long-distance costs you. When voice services were 25 cents a minute, everybody looked at putting voice and data together on a network. But now that you're talking voice costs in the sub-10-cent range on the public switched network, you have to take a look at the impacts to [the] overall data network.**

Q: ***Are there other reasons Citibank isn't planning to use voice over data networks?***

A: **At Citibank, we have growing network requirements that will continue to devour bandwidth as new applications come online. We clearly don't want to have a lot of voice consuming the bandwidth that will keep us from implementing some very creative electronic-commerce applications or really exciting new applications. It's not a simple financial calculation anymore. You really have to look where you're going with the data network because it's very critical and it's very strategic to the overall success of the company.**

Q: ***What does the new network provide?***

A: **It provides the kind of connectivity we need around the globe to provide Web-based electronic commerce and home banking that we don't do on our traditional networks today the way we'd like to.**

Public network still cheaper, better

By Matt Hamblen

AT ISSUE

Low quality, high price

VOICE OVER DATA NETWORKS leave some users less than thrilled with the voice delays and echoes that lead to awkward pauses and questions of "Come again?"

For now, those types of calls are mainly for talking over ideas with colleagues and not for hammering out details of a contract with a customer you need to impress.

"Corporations have concerns about quality, and they don't want customers calling on a line that's not toll-grade quality," says Mark Winther, an analyst at International Data Corp. (IDC) in Framingham, Mass.

Surprisingly, it isn't those quality concerns that are stopping large companies from adopting Internet telephony, analysts say. It's the cost for a large company to put voice over the Internet compared with the shrinking cost of traditional long-distance service.

Large companies can negotiate long-term contracts with long-distance rates as low as 4 cents per minute inside the U.S., which is a better rate than some Internet telephone calls. And they already have traditional calling plans in place that provide high quality, says analyst Tom Nolle, president of CIMI Corp. in Voorhees, N.J.

MARKET DRIVERS

But the many small to midsize businesses and millions of consumers not eligible for the lowest corporate rates will drive interest in Internet calls for the next two years, analysts say.

Consumers will be the biggest market, but multinational companies that use this technology for international calls also could see some benefit, according to Winther.

IDC predicts that the worldwide market for voice over IP will grow to $24 billion in 2002, up from $700 million last year. Though $24 billion may sound enormous, it represents just 11% of all the switched-circuit traffic expected and many analysts consider it a niche.

Still, several vendors, including Lucent Technologies, Inc. in Murray Hill, N.J., Nortel, Inc. in Richardson, Texas, and Cisco Systems, Inc. in San Jose, Calif., are competing in the market with newer vendors such as VocalTec Communications Ltd. in Northvale, N.J., NetSpeak Corp. in Boca Raton, Fla., and Clarent Corp. in Redwood City, Calif.

Some companies offer gateways to convert voice to data, while others provide voice over Internet or frame relay service, which requires no equipment for the customer and only a monthly bill or prepaid credit card.

But some experts see the market differently.

"In my personal judgment, those companies are wasting their time, chasing a vanishing market," Nolle says. More installed fiber-optic networks are allowing long-distance carriers to reduce the cost and make it harder for Internet telephony to grow, he says.

Even analyst Jeff Pulver at Pulver.com in Melville, N.J., who calls himself the "evangelist" of voice over the Internet, sees the technology's limits.

"The quality of service over the Internet is predictably unpredictable," he says. □

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RELATED TERMS

- **Frame relay: A network protocol used for connecting devices on a wide-area network. Its transfer rates are 1.544M bit/sec. and 45M bit/sec.**
- **Internet Protocol: Moves packets of information along the network. It doesn't correct the packet if it doesn't make it to its destination.**
- **TCP/IP: Stands for Transmission Control Protocol/Internet Protocol. It is a set of network protocols that allows computers to communicate with one another.**
- **Telephony: The science of converting sound into electrical signals, transmitting them and making them sound again. Today, sound usually means voice.**

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OPINION

Fantasy math

I've never met a number I completely trusted. That probably stems from my third-grade experiences with the multiplication tables — a skills gap of my own caused by a teacher who kept standing me in a corner for talking in class. I suspect it was in one of my corner sessions that everybody else learned about using multiplication in statistical projections, also known as fantasy math.

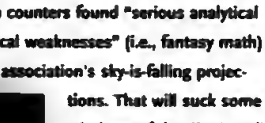
It seems there was a bit of fantasy math behind the much-publicized figures on the IT staffing crisis. Last week, the U.S. General Accounting Office debunked the "346,000 vacant IT jobs" number being bandied about by the Information Technology Association of America (ITAA) and the U.S. Commerce Department.

The GAO bean counters found "serious analytical and methodological weaknesses" (i.e., fantasy math) behind the trade association's sky-is-falling projections. That will suck some wind out of the ITAA's political sails as it lobbies Congress to increase the number of foreign high-tech professionals who can work in the U.S. It will also give aid and comfort to the ITAA's critics, who contend that employing more retirees and laid-off technical workers would help fill that rapidly draining job pool.

The GAO's conclusions come as no surprise to *Computerworld* readers, of course. Two months ago, our careers editor, David Weldon, and freelance writer Rochelle Garner examined all the scare-tactic statistics in a sobering two-part special report ["The numbers game," CW, Jan. 26, and "Pressure gap: Transforming the IT workforce," CW, Feb. 2]. Their thorough analysis of the whole situation can also be found on our Web site, *www.computerworld.com*, by clicking on the IT Careers section and then on "index of past articles."

But beyond the political smoke and dire predictions are realities that IS managers live with every day: It really is hard to find qualified people to fill open positions. Important projects really do sit idle while the search goes on. Tech salaries are rising, and a lot of top IT pros are fleeing to consulting gigs.

So who cares about fantasy math when reality still bites? Probably the same people who thought those multiplication tables were so interesting.



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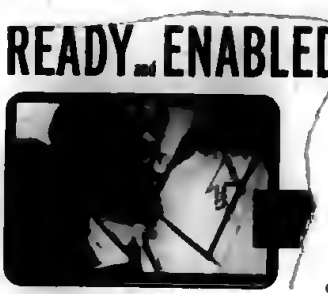

Speaking browser overlooked in enabling-technology report

COMPUTERWORLD'S Feb. 16 report on technology and the disabled ["Ready and enabled" and "Helping hands: A sampling of technologies for the disabled"] failed to include any mention of the first and most widely used software for providing Internet access to the visually impaired: PwWebSpeak from The Productivity Works, Inc. in Trenton, N.J.

PwWebSpeak helps the visually impaired access the Internet.

This speaking browser is used by schools, government agencies, nonprofits and corporations around the world and has been featured in other media stories.

Those who are interested in learning more about this technology can follow the examples of thousands of others and visit *www.prodworks.com*.

Phil Hall
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More information on disability help

THANKS FOR the two articles dealing with assistive technology and disabilities in *Computerworld*'s Feb. 16 issue.

We need more information of this type disseminated, and it's nice to see a major computer publication devote some space to help those in the computer industry understand the capabilities of people who are disabled.

There are also a number of Internet resources available that provide information on adaptive technologies.

Some sites on the World Wide Web include:

1. National Council on Disability (*www.ncd.gov/*)
2. National Institute on Disability and Rehabilitation Research (*www.ed.gov/offices/OSERS/NIDRR*)
3. In the Blink of An Eye (*www.golden.net/~blink/main.html*)
4. American Foundation for the Blind (*www.afb.org*)
5. Deaf World Web (*http://deafworldweb.org/*)
6. Disability Resources from Evan Kemp Associates (*http://disability.com*)
7. Yuri (*www.yuri.org/webable*)
8. Trace (*www.trace.wisc.edu/trace/program.html*)
9. Alliance for Technology Access (*www.ataccess.org*)
10. AbleData (*www.abledata.com*)
11. Center for Applied Special Technology (*www.cast.org*)

Jim Breene
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Win NT comparison needed

IN YOUS STORY "Digital OpenVMS users await fate" [CW, Feb. 16], you state that 20-year-old OpenVMS is one of Digital's oldest operating systems. Actually, given that Digital is nearly 40 years old, Digital had many more operating systems (PDP and RT-11, for example) before VMS was created.

Publications such as *Computerworld* would be more useful if they conducted impartial tests of key technologies, including operating systems. We hear so much about NT through articles that seem to be original but are in fact drawn from the promotional hype provided by vendors. This is why my copy of *Computerworld* (and other journals) hits the recycling bin very quickly.

Why hasn't there been a side-by-side comparison of enterprise operating systems — VMS, MPE, Unix and OS/400 — along with NT so that readers are able to separate the hype from reality?

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Computerworld welcomes comments from its readers. Letters shouldn't exceed 200 words and should be addressed to Maryfran Johnson, Executive Editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax number: (508) 875-8931; Internet: letters@cw.com. Please include an address and phone number for verification.

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CONSULTING EMPLOYERS

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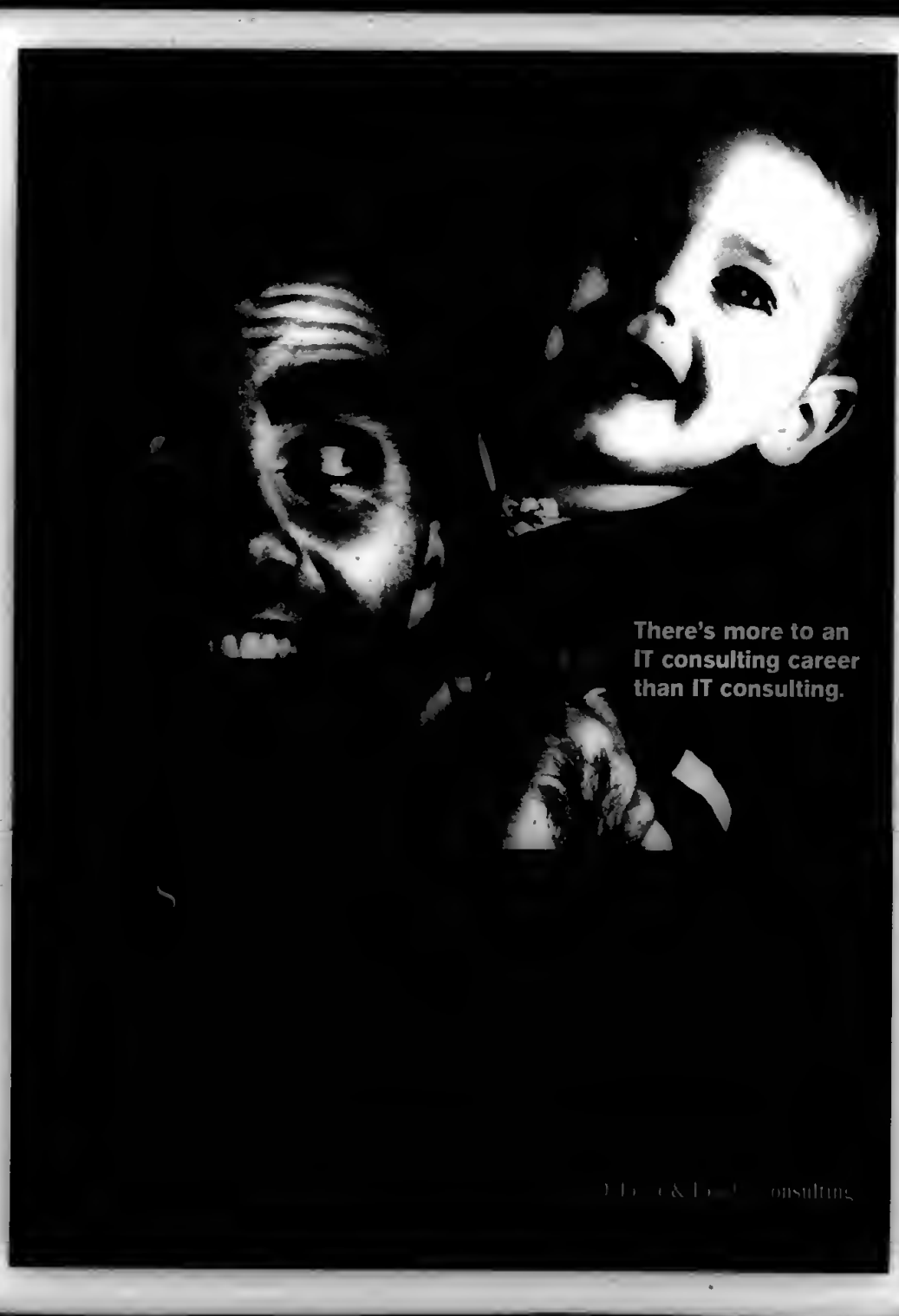
There's more to an
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Spring 1998

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Cover and "Mavericks and mercenaries" illustrations by Stephane Dovis

From the Editor

THE NEW IT WORKFORCE

Industry leaders, political lobbyists and senior government officials two months ago gathered in California to address the "labor crisis" facing the computer industry. Several worthy initiatives arose from the event, but among the highlights was growing disagreement about whether the IT labor crisis is actually a staffing shortage or a skills shortage. Throughout the high-level talks, company owners and technical recruiters sounded a common message: "We can't hire enough skilled workers, so we have to keep using contractors."

Welcome to the new order.

The number of information technology contractors and consultants is skyrocketing — by some accounts by 15% or more per year. Driving the craze: tales of huge salaries, access to cutting-edge technologies and the potential for better training. More IT professionals are being lured by the career flexibility and control that consulting promises.

The result? Recruiting for permanent IT employees is hellish. And while corporate IT jobs often go begging, contractors and consultants are stepping in to take up the slack — many at top dollar *("Cashing in," page 4)*.

Recruiting is no less intense for IT contractors. Consulting companies are eager to sign the best and brightest IT professionals, who can bring technology skills and business savvy to the bargaining table. If you fit this profile, leading consulting employers would love to hear from you *(see index of consulting employers, page 2)*.

Obviously, some regions and industries offer better opportunities than others. IT guns for hire must be willing to follow moving targets *("Mavericks and mercenaries," page 16)*. But no matter where you live, there are plenty of consulting employers and opportunities *(see state listing of participating employers, page 46)*.

Before answering the siren's call, be warned: Contracting and consulting can be a very demanding lifestyle, and the bar is being raised on what you must deliver. If you're counting on technical skills alone to fuel your future IT career, you may soon find yourself obsolete *("Swan song for the technical specialist," page 30)*.

So, just who wants what skills? Most consulting employers specialize in and look for certain business and technical specialties *(see skills listing of participating employers, page 51)*.

No matter how you view the IT workforce, one thing is certain: There has never been a better time to work in IT and there have never been so many opportunities for contractors and consultants. In the battle to stay competitive, companies are demanding a more skilled workforce. And consultants are becoming the frontline troops.

David Weldon

David Weldon
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CASHING IN

While corporate IT staff jobs go begging, contractors and consultants are taking up the slack, many at top dollar

BY MIRYAM WILLIAMSON

Matthew Stein has decided that independence is a lifestyle he can definitely get used to.

Stein, a former staff consultant at Andersen Consulting, left the company in 1996 to strike out on his own. His three-year stint at Andersen had given him business experience, great technology skills — and lots of contacts.

Those contacts led to an assignment at Wallace Computer Services, Inc. in Hillside, Ill., where Stein is working on a World Wide Web application using Java. He calls it "a neat project; new as technology gets." Stein has experience with Common Object Request Broker Architecture, client/server architectures and relational data-

Photograph by Andy Goodman

A stint at Andersen Consulting gave Matthew Stein the skills, experience — and daring — to strike out on his own. He credits the contacts and relationships he built there for his new success

base systems. Last year, he earned $107,000. Little wonder. Demand for skilled information technology consultants and contractors is skyrocketing. Salaries are shooting up along with it. Ken O'Brien, director of information systems at Wallace, an integrated supplies management company, says every hiring manager he knows "has a long list of resource needs and almost an open requisition for hiring IS professionals."

O'Brien says he would gladly hire another 40 permanent IS employees, "but the contracting market is so lucrative it's impairing our ability to fill full-time positions." And O'Brien says he would love to put Stein on the permanent payroll. But Stein says he likes the sense of control in staying independent. And he wants to keep his options open.

"I'm thinking more of starting my own software development consulting business than trying to move up in a company," Stein says.

"Consultants really hold the upper hand right now," says Jeff Iverson, owner of Iverson Software Co. in Mankato, Minn. "There is a shortage of talent out there to do what needs to be done," says Howard Niden, partner and head of Price Waterhouse LLP's North American IT consulting practice.

Iverson runs an online service for independent consultants and employers seeking help. "[Employers] are starting to ask for a combination of skills," Iverson says. "For instance, there might be a requirement for someone who knows RPG, MVS, Windows NT and Java. Cross-platform ability is a big asset."

It is Stein's assortment of skills that makes him a hot property in the consulting marketplace. And that marketplace is huge. Corporate IT groups, large consulting firms such as Andersen and Price Waterhouse and the placement services most consultants are affiliated with are all competing to draw consulting talent. Also heating up, campus recruiting and job fairs that combine salary and lifestyle inducements. Iverson says some employers are offering $5,000 bonuses to consultants who stay with them for as little as 90 days.

Companies are paying between $50 and $75 per hour to IS professionals with legacy mainframe skills such as RPG, Cobol, MVS and CICS, Iverson says.

Those who know Java, C++ and multitier client/server architecture can look for rates of $125 to $150 per hour. An independent consultant's hourly rate is typically one and a half to two times that of a staffer with the same skills. But independents provide their own benefits (including health insurance, vacations, pension plans and a 15% Social Security self-employment tax), so the discrepancy isn't nearly as great as it appears.

Year 2000 conversions are providing part of the fuel for the sizzling consulting market. But the main impetus is the number of mammoth projects under way, says Bob Russell, partner in charge of human resources at Price Waterhouse's management consulting service in New York. People who can work on SAP AG, Oracle Corp. and PeopleSoft enterprise resource planning (ERP) implementations are much in demand, and those also skilled in project management are the most sought after.

Niden, who is overseeing a royalty system development project for an entertainment

company, reports increased corporate interest in custom application development.

To set themselves apart, firms are recognizing the need for applications tailored to their goals and ways of doing business. Consultants who want to address this need should have a knowledge of application, technical and data architecture, as well as project management, Niden says. At Price Waterhouse, such a person can earn up to $250,000 per year, Niden says.

Savvy consultants are adding industry-specific knowledge to their skills. Marketing systems, customer management, order entry, knowledge management, data warehousing and data mining, and electronic business applications are increasingly important, hiring managers say. On the flip side, managers and consultants see little call for proficiency in Windows 3.1, DOS or other 16-bit technologies.

Certain legacy system skills are another story. "I don't think the needs for Cobol are decreasing by any stretch," O'Brien says.

Most observers predict double-digit growth in pay scales for consultants over the next few years, but money won't be the only thing they will look for. Experienced contractors often place quality of life before pay.

WEAVING A WEB

The ability to nurture one's personal network is the one skill every consultant needs, says Alan White, president of IT Consultants, Inc. in Orangeburg, S.C., a custom development and placement service.

"If a client comes to me with a request I can't fulfill and I just say, 'I'm sorry,' I hurt that relationship," White says. "Instead, I look around among the people I know and try to find someone who can do the job."

It's a classic "what goes around comes around" situation, White says. "Some of the best engagements I've had came about because somebody in my network couldn't handle the job, and I was introduced to someone I might otherwise not have met," he says.

Networking is how Stein got to be where he is today. He first came to Wallace as an Andersen employee. A few months after he left Andersen, the partner in charge of that project called him about another opportunity at Wallace. "It sounded kind of interesting," he says.

Stein says he wouldn't have sought work at his former employer's client for ethical reasons. But "since it was Andersen asking me to do some work for the same client as an independent, I figured it was OK," he says.

Stein knows an independent consultant's life is less secure than that of an employee, but he isn't worried. Wallace has him in mind for another project after he's completed his current one.

Stein says he sees his work lined up in front of him for the rest of the year, and that's more than most employees can say with assurance.

Williamson is a freelance writer in Warwick, Mass.

IT consulting's top jobs

Multitier ERP and global systems

TECHNOLOGY SKILL: Individuals with both mainframe and client/server technical knowledge, SAP or PeopleSoft experience are much in demand. Top guns have project management skills.

BUSINESS SKILLS: Consultants need ability to grasp complex business processes and relationships, excellent interpersonal and communications skills required.

TOP MARKETS: Most Fortune 100 companies are involved in enterprise systems implementation.

SALARY POTENTIAL: $75 to $125 per hour

Year 2000 conversion of legacy systems

TECHNOLOGY SKILLS: MVS, CICS, DB2, Cobol, IMS knowledge is highly prized. Project management is a plus.

BUSINESS SKILLS: Understanding of specific business processes, interpersonal and communication skills desirable.

TOP MARKETS: Smaller financial services organizations, manufacturing, transportation

SALARY POTENTIAL: $50 to $75 per hour

Custom application development

TECHNOLOGY SKILLS: Top guns have working knowledge of application, technical and data architectures as well as project management skills. Lesser professionals know analysis, design and object-oriented development.

BUSINESS SKILLS: Intimate knowledge of specific industry practices and competitive intelligence. Superior communications and interpersonal skills a must.

TOP MARKETS: Retail and wholesale sales, financial services.

SALARY POTENTIAL: $50 to $125 per hour

Browser-based decision and marketing support

TECHNOLOGY SKILLS: All Internet skills, including Java, HTML, cross-platform communications, data warehousing and mining

BUSINESS SKILLS: Knowledge of online analytical processing, cross-selling (offering goods and services related to those the customer has already bought). Interpersonal and communications skills.

TOP MARKETS: Retail sales, banking, supply-chain management

SALARY POTENTIAL: $50 to $75 per hour

E-commerce, transaction processing apps

TECHNOLOGY SKILLS: Internet technologies, Java, C++, HTML, Microsoft Internet development tools, data warehousing

BUSINESS SKILLS: Thorough understanding of business rules, processes, order entry, customer management. Communications and interpersonal skills.

TOP MARKETS: Growing need in banking and retail

SALARY POTENTIAL: $75 to $125 per hour

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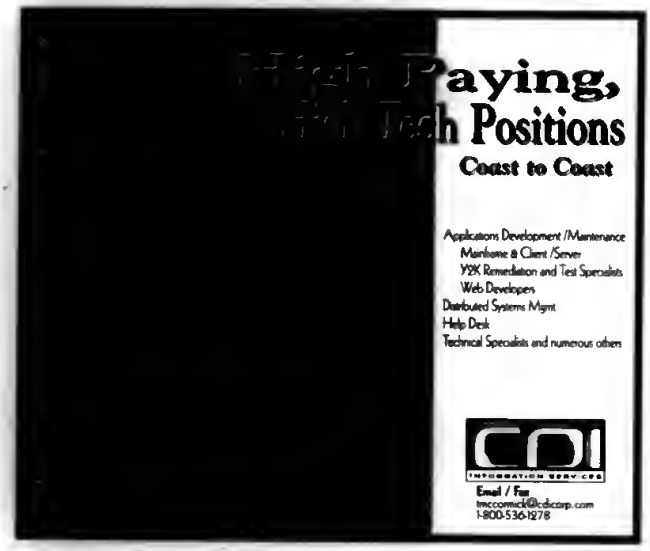

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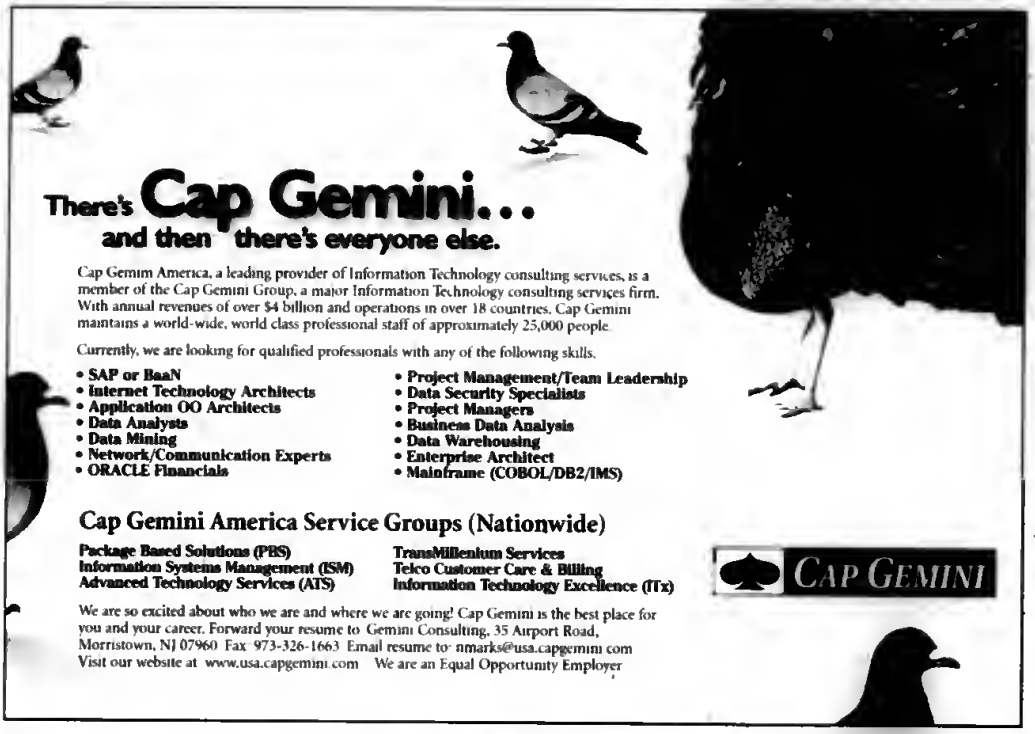

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Illustration by Stephane Dosis

Don't expect to find Jeff Gainer at home in Hamilton, Mont., much these days. Gainer, an independent IT project management consultant, has clients clamoring for his skills. During the third week in February, you would have found him in Phoenix living out of a hotel suite, finishing up a two-week contract for a financial services firm. Two months from now you might find Gainer in Seattle. Or North Carolina. Or any of the other hot regional markets for IT contractors from coast to coast.

As it becomes harder to find qualified information technology workers, a natural fallback tactic is to hire temporary workers, or contractors. And IT hiring managers are grabbing them wherever they can find them.

These mercenaries of the IT world make no commitments, pretend no loyalties and promise nothing to temporary bosses other than that they will finish a job within a particular time frame for a particular — usually very high — fee. But IT managers are increasingly dependent on their services.

Contracting agencies say the highest demand — and top dollar paid — for IT workers on either coast can be found in the greater New York/New Jersey area, where many multinational giants have their world headquarters; and in Silicon Valley, where a large proportion of new technologies are developed. Other needy markets include Southern California (both Los Angeles and San Diego), Atlanta, Phoenix and major cities in Florida and Texas.

IT guns for hire must be willing to follow moving targets. Here are some industries and markets that will give you your best **shot**

BY ALICE LAPLANTE

ERICKS CENARIES

But ask the contractors for their take on the hiring demand, and the answer varies depending on their area of expertise. Gainer, for example, gets most of his calls from the Northeast and North Carolina.

Robert Parkinson, an SAP AG consultant based in Roseville, Calif., finds that he is wooed mostly from overseas.

Tom Stevens, an information systeros consultant in Suwanee, Ga., lately has been hounded by recruiters desperate for PowerBuilder expertise. And they all seem to be from Denver, he says.

Stevens recently accepted a contract project in Boston managing a year 2000 conversion project for a telecommunications company. What most attracted Stevens to that project compared with all the other offers he receives daily is that he will be in charge. "That's the most important thing for me. The level of responsibility," he says.

And Stevens isn't alone. Don't get the idea that today's IT contractors make their decisions based solely on cash proffered. Indeed, most place less emphasis on salary than on

such things as whether the proposed project will allow them to enhance their skills, either technical or managerial; the duration of the job; and location.

"I've passed up on more money than you can imagine," says Stevens, who refuses to work in New York and who says that he "probably wouldn't accept a job west of the Mississippi."

Jeff Iverson, owner of Iverson Software Co. in Mankato, Minn., and creator of a World Wide Web site that provides a free matchmaking service for contractors and IT managers, says there is an almost comically dramatic mismatch between employers and contractors. For example, he says, only one technical skill is on the top 10 wish lists of both: Windows NT.

Employers are asking for more established skills sets. In order of urgency, they request Cobol, Oracle, Unix, SAP, CICS, DB2, SQL, JCL and project management skills. Yet contractors are seeking jobs that will help them use or develop Windows 95 or Windows 3.x, DOS, C, Microsoft Access, Hypertext Markup

Language, C++, Visual Basic and Java skills. "There's a huge discrepancy out there," Iverson says. The contractor rates at Iverson's Web site range from $25 per hour to $145 per hour. The greatest demand seems to be from the Northwest, he says.

The biggest contracting trend that *isn't* happening is telecommuting and remote access. Contractors want it, but employers aren't eager. "You can't blame them; they want to maintain a certain amount of control over their workforce," Iverson says. But as the IT skills shortage gets worse, employers probably will be more amenable, he says.

EASY TARGETS

Jim Curry hopes so. As director of sales and marketing at Technology Locator Corp., a San Diego-based contract staffing specialist, his clients are in California only. His database of 100,000 contractors — 400 to 1,000 of whom may be free for an assignment on any given day — come from all over the country.

For Curry's Silicon Valley clients, the greatest demand is for contractors to work on Web and intranet projects. In San Diego, there's more of a demand for projects involving communications technology, including telephony and other types of digital communications.

Curry says it is easy to attract people to those jobs because the projects tend to incorporate leading-edge technologies. The salaries also tend to be higher on the West Coast. But the high cost of living can be a deterrent. Rental occupancy rates in the San Francisco Bay Area top 99%, so even the 18% salary premium paid to contractors there sometimes can't offset the higher costs of housing and food.

And, Curry says, it is becoming much more difficult to place people in maintenance or legacy positions. "People think, often quite rightly, that their skills will not be current when it's time to move on," he says. Of course, Curry says, as demand for these less-attractive projects drives up prices, "you can eventually satisfy just about anyone if you agree to pay them enough."

Yet many contractors should think twice about hanging up their Cobol hats. Why? The year 2000 problem won't go away in 2000. And the price tag for contractors willing to bust their guts on this admittedly lower-level work keeps rising.

"There is no way that everyone is going to have their systems fixed in time," insists Steve Epner, the founder of the Independent Computer Consultants Association (ICCA) in St. Louis, and president of BSW Consulting, Inc. Epner admits it might take some persuading — and a whole lot of dough — to get IT contractors to take what will inevitably be dead-end jobs. Still, he says, "Cobol is the ticket for making a lot of money over the next few years. Not C++ or any of those other fancy things."

Yet many contractors say their lives are so harried, and the technology market moves so fast, that in terms of career development, the only "training" they get is on the job. Thus the importance of choosing each contracting job carefully. A Java stint might pay less than a Cobol year 2000 contract, but in the long run it may be a wiser choice.

"There's so many new development tools and software packages out there, it's a challenge to keep current," says Camille Schenkel, president of C4 Design Group, Inc., a New York-based multimedia design and development contract agency that specializes in Web development.

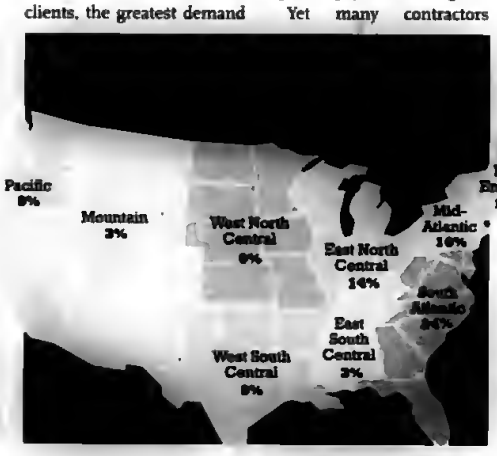
When you're working seven days a week, "it's more difficult to squeeze in the things that used to pass for long-term career planning. You grab it when you can — on the job," Schenkel says.

But John Genzano is proof positive that contractors are creative folk — and that compromises exist. He says he sees year 2000 conversion jobs "everywhere. Literally everywhere." But Genzano says he doesn't tell anyone that he knows Cobol because he doesn't want to get pigeonholed into a well-paying but ultimately dead-end job.

Genzano, a West Chester, Pa.-based contractor who specializes in developing departmental client/server systems based on Microsoft Access, says it's often possible to convince clients that it makes more sense to replace than patch an aging system.

"You can get the best of both worlds by building a year 2000-compliant system based on newer technologies," he says.

LaPlante is a freelance writer in Woodside, Calif.



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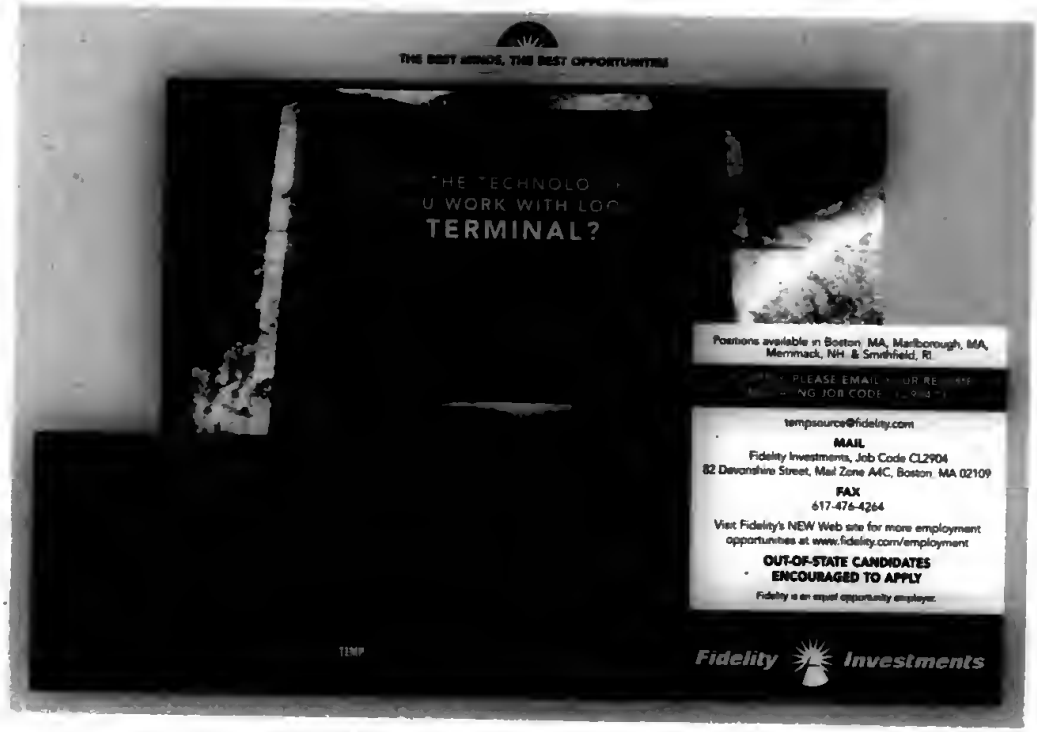
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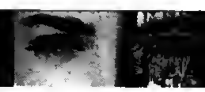

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BY CLAIRE TRISTRAM

These are boom times for technical specialists.

Year 2000 conversion experts can practically name their own price.

Contract programmers are still having a field day replacing 30-year-old systems with client/server applications.

Then there's the crushing demand for anyone with World Wide Web skills. According to software recruiting company Allen Davis & Associates in Amherst, Mass., even inexperienced Hypertext Markup Language (HTML) programmers are getting about $50 per hour. Those who can produce corporate Web sites command $250 per hour or more.

But the era of the technical specialist is almost over.

"Right now, you can make an unbelievable amount of money on technical skills alone, particularly if you know any legacy language," says Steve Epner, president of St. Louis-based BSW Consulting, Inc. and founder of the Independent Computer Consultants Association, a 1,500-member organization, also in St. Louis. "But in very short order, consultants will be expected to merge their technical skills with business experience. A lot of people aren't going to make it."

FRESH TALENT

It isn't just that year 2000 work is a one-time bonanza that will disappear overnight, making Cobol programmers obsolete again. It's that many of the skill areas that are in short supply today, such as HTML and Java, will soon be inundated with college graduates happy to do the work at half the current rates.

And much of the re-engineering work that has fueled the IS consulting industry for the past decade is complete. Companies don't need IS consultants to build information systems for them anymore. They need consultants who know how to make their businesses run better.

"When we put a new application in, it's not a major overhaul for us anymore," says Ed Pease, computer services manager at Merck and Co.'s pharmaceutical manufacturing facility in Elkton, Va. "Off-the-shelf software is much closer to what we want than even a few years ago. We don't need to hire experts to redesign it for us the way we used to. Instead, they need to understand our business so they can advise us how to make it better. They need to be able to walk into a business meeting and to know what's going on."

The skills that will be in demand in the next few years aren't easy to explain in a few lines on your resume. Nor are they the so-called "soft" skills, such as presentation and communication skills (although those will be as important as ever). A knowledge of business processes from beginning to end and who needs what information at every step of the way will truly separate the successful IS consultants from the also-rans. Also important will be the ability to combine that knowledge with the best available technologies.

"CONSULTANTS MUST BE ABLE TO RELATE THE TECHNOLOGY TO THE BUSINESS," says Ed Pease, computer services manager at Merck and Co. in Elkton, Va.

"I don't need someone who understands SAP or Data 3," Pease says. "I need someone who understands procurement or financials or materials resource planning. Consultants must be able to relate the technology to the business."

What particular business process is in demand? Electronic commerce tops the list, observers say. Not how to make it work technically, but how to use the technology to make money for the client. It's an area where successful consultants will bring to the table an intimate knowledge of sales, distribution and billing.

"We've seen systems that allow customers to request guaranteed overnight delivery, with no ability built in to the system to check whether a given part is out of stock," says Jon Reed, a director at Allen Davis & Associates. "It's one of many examples where even someone doing a small programming task

Photograph by Edward Bannister

needs to understand what the company is trying to do," he says.

Although electronic commerce gets the most attention, knowledge of any business process — , the manufacturing process of a given industry, for example — will be a huge differentiator in a consulting career. Building, distributing, billing and being paid for products and services are universal business activities; a knowledge of any single process gives you a skill that won't become obsolete. The smaller your consulting firm, the more critical your business expertise will become.

BOTTOM LINE

"My clients want to see the immediate business benefit of what I do for them," says David Hirsch, executive vice president at New York-based OnSite Access, an IS consulting firm with a staff of 10. "I position myself not as a technical expert, but as a part of the business team. I need to be able to explain the business reasons for why we're doing what we're doing. If I can't, I'm not doing my job."

"THE BEST CONSULTANTS WILL MERGE ON-THE-JOB TECHNICAL EXPERIENCE WITH A FORMAL BUSINESS EDUCATION," says Steve Epner, president of SEW Consulting, Inc. in St. Louis

How do you develop the depth of business experience required to not just build systems, but to add business value? Hirsch had 13 years' experience as a general business manager before he became an IS consultant. But most consultants don't have 13 years to develop the same level of experience.

Epner recommends investing two years in a good MBA program. "The best consultants will merge on-the-job technical experience with a formal business education," he says. "The big money will go to the people with both."

But even two years sounds like a long time to invest, particularly now, when consultants fare well on technical expertise alone. Another alternative is to join a consulting firm that is large enough to give you on-the-job training. Big companies can give you the opportunity to develop business process experience while working on a project team with more experienced peers.

But when you gain the experience, you will be rewarded for it. Reed estimates that Allen Davis & Associates places consultants with business process knowledge at five times the hourly rates of consultants without those skills. And you'll be investing in skills that will always be in demand. Programming languages and tools will continue to evolve, but businesses will always be looking for better ways to produce, distribute, sell and collect revenue for their products.

"There will always be a need for technical people," Epner says. "But they're going to become more like the auto mechanics of the consulting world. They'll have a glass ceiling to contend with that's getting lower all the time. To get past the glass ceiling, you'll need to know more than how to plug it in. You'll need to understand what your clients are trying to accomplish and how you can help them get there."

Tristram is a freelance writer in San Jose, Calif.

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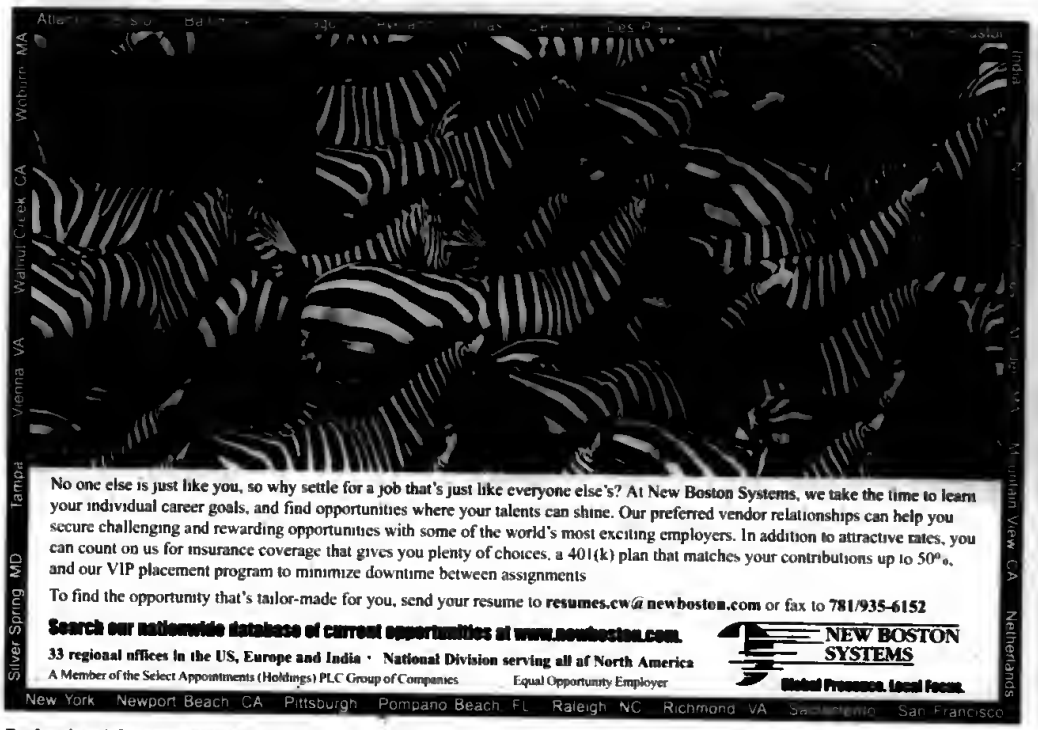
Source: Computerworld's 1997 Annual Skills Survey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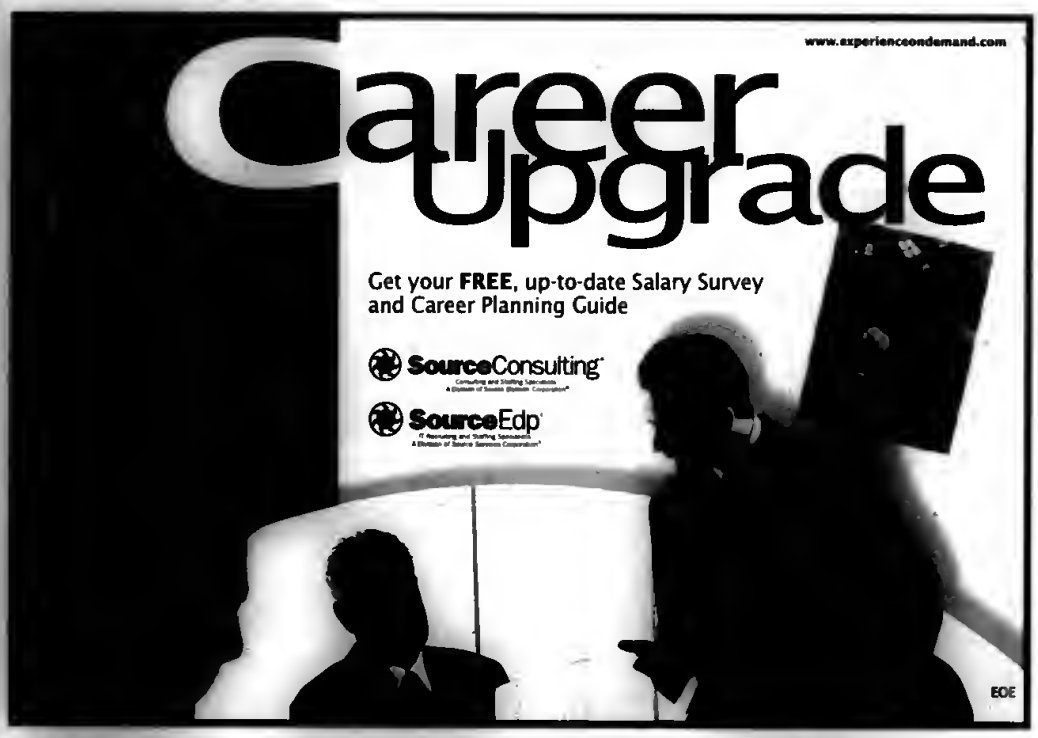

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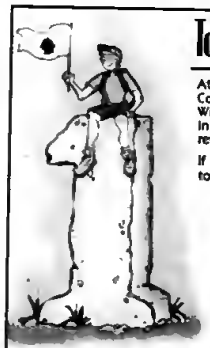

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RSA	303-741-3105	www.resourcesupport.com	Page 34
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Reed Business Systems Consulting, Inc.	708-449-7742	www.reedbsc.com	Page 33
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Spearhead System Consultants (US) Ltd.			
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THE STANDARD FOR AN INDUSTRY

The hard truth about soft skills

Nancy Johnson

Organizations are so desperate for programmers that requirements have been reduced to possession of opposable thumbs and knowledge that Cobol is not a radioactive element. Human resources departments have despaired of finding qualified (yet affordable) IS staffers who will stay long enough to find their way to the restrooms without a map.

Those matchbook-style, six-week IS training programs are a farce.

As a result, many companies will now hire anyone willing to undergo on-the-job training in Cobol for six weeks, then get thrown into maintaining 20-year-old spaghetti code and cleaning up date fields in mission-critical applications.

Hello? Does anyone remember the first time that tactic was tried — in the 1960s? Remember those matchbooks that offered exciting careers without getting your hands dirty? Remember the take-your-money-and-run training schools that taught unsuspecting students how to keypunch and mount tapes, then launched them into the world?

Remember the results of all of the above?

The computer field was filled with naive people who thought they were on an unlimited career path, then quickly learned they had hit a plateau with their promotion from trainee to junior programmer.

They didn't have the training or skills to become proficient analysts, supervisors or project managers.

End users quickly took jealousy-driven revenge for what they perceived as high salaries paid to IS employees who spoke only jargon. They exacted that revenge by denying computer jockeys the opportunity to move elsewhere in the company.

The techies in the basement were doomed to stay there until they went to another company, which was the only way they saw to advance their careers. When they left, their absence caused much disgruntlement among the users who had resentfully come to depend on them.

Thus began the myth of the unstable, nomadic programmer — and the subsequent management mantra: "Why train 'em when they leave anyway?"

So if you're planning to join the exciting world of IS and you think a six-week training course will prepare you for a long, fulfilling career, here's my advice:

Wise up, bunkie! You are embarking on a career in which your state-of-the-art knowledge has the half-life of a gnat.

IS workers face higher standards now than they did in the '60s. Techies are expected to speak the business language of the end user and realize that the organization is not in business to keep the mainframe busy. IS types are expected to work in user departments, not behind security doors, and may actually be required to interact with unwashed users many times during a given day.

So those matchbook-style, quick-and-dirty training programs are a farce.

These days, you must form entire sentences devoid of acronyms. You must write not just lines of code, but also status reports that address users' concerns. You must solve problems creatively, work easily on a team and understand the human side of project management.

A college degree teaches those skills, which can be transferred to non-IS jobs. Tech school training gives you an entry-level job today. A real career demands much more. Acquiring "soft skills" while earning a college degree pays off in the long run. A programmer's job is only a foot in the door.

You are responsible for keeping your skills up to date and relevant.

Get ready for the backlash when the boom ends. □

Johnson, a survivor of a matchbook course in computer programming, is now a professor of MIS at Metropolitan State University in Minneapolis.

Intel's support plan is risky business

John Gantz

Now it's not just Intel chips, but Intel hands that will be inside your computer. Intel plans to offer third-party PC support services to end users and consumers. The program is called AnswerExpress (*www.answerexpress.com*).

Rotsa ruck.

Actually, I suppose if Intel can blow $1.3 million per 30-second spot on those god-awful Super Bowl ads, it can spend a few of its billions of profit on trying to make computers easier to keep around the house and office. Maybe then order rates for PCs will pick up again, more Intel chips will get sold and so on and so forth.

But I think that despite all its resources, Intel has about the same chance of success in this endeavor as Don Quixote did sparring with the windmill.

But then, maybe I'm jaded. I've seen this idea before. In the early 1980s, a little-known company shipped a product called MayDay that, like the Intel offering, was sold like shrink-wrapped software. Customers paid a set price to start and so much per month for the convenience of calling one company when they encountered problems with a multitude of software packages.

It was a neat idea . . . that lost money. MayDay called in a mayday.

Of course, Intel isn't what you'd call a start-up. And unlike MayDay, AnswerExpress is solely an online service (customers send electronic mail to Intel, which calls back).

But that doesn't change the basic business problem, which is that there's no economy of scale in PC support the way there is with PC software. Call handling is still call handling, and each service incident costs money to solve.

And the more customers you get, the more likely you are to find real technician-stumpers — service incidents that chew up hours of tech time. Along the way, if demand grows too slowly, you lose big money in salaries.

If it grows too quickly, you lose money in recruitment and outsourcing.

It's hard for me to see AnswerExpress as a profit-making business, particularly when world-class PC support organizations such as Digital and Unisys have eschewed similar ideas for fear of being buried in unprofitable demand.

And if Intel's motivation isn't profit, then sooner or later, organizational motivation will flag.

Yes, it's possible there's a hidden agenda behind AnswerExpress, such as the sale of Intel upgrade kits or boards, or the sale of leads to Intel customers, or practice serving consumers in advance of some new Intel initiative. But I don't think so.

Call handling is call handling; each incident costs money to solve.

I think this program will be more like a nonprofit development agency whose mission is to "do good works."

Now, if Intel is willing to go at AnswerExpress under these conditions — that it won't make a profit and it will be hard to keep customers happy — then AnswerExpress may be just what the doctor ordered.

I expect that with Intel's clout, the company can publicize the program quickly, and disaffected consumers and companies seeking to support end users better will flock to the site.

Then, if Intel can somehow maintain its expertise on 200 software packages (running on thousands of hardware configurations), it might even maintain a customer base for AnswerExpress.

For users, AnswerExpress offers a low-risk option for PC support; for Intel, it's a high-risk business proposition — a risk/reward scenario that doesn't pan out very often. □

Gantz is senior vice president at International Data Corp. in Framingham, Mass. His Internet address is jgantz@idcresearch.com.

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OPINION

Java on ice

Bill Laberis

What's platform-independent, backed by a unified consortium of companies and just about ready for big-time enterprise application development? If you said "Java," guess again.

Like the dreams of so many kids as they grow up, the Java legend-before-its-time is ambling toward a head-on collision with reality. That reality is this. In an industry driven by competition and customer demand, consortia just don't work. Especially consortia that don't have the customer in mind as much as knocking off the big guy on the block.

Oh sure, Java sounded great. It had the backing of all the big companies — with the notable exception of Microsoft.

Developers would write programs in Java, and users would run them on any hardware available because Java is platform-agnostic. In theory, that is.

And get this. With Java, you can park all the big applications in nether-space, and thin clients will freely and quickly download only as much of the applications as the user needed. "To each according to his needs." Didn't Karl Marx write that?

Utopia slips away (again), as uneasy allies go their own ways.

Stick a fork in Java, at least the picture of the Java world that's been painted by the Sun-Oracle-IBM axis.

It's shaping up more like the Unix of the late 1990s — lots of versions and variations, but little unanimity among the makers of the variations.

Specifically, Hewlett-Packard is off developing an independent Java virtual machine and class libraries for embedded systems. Meanwhile Java's creator, Sun, is still trying to convince everyone that Java really is open — even if Sun owns it and is steward of all major Java development.

Microsoft, of course, is barreling ahead with plans to make Java a real nifty adjunct to Windows.

The problem, as Shakespeare wrote, is not in the stars (Sun, of course, being one of the stars). Rather, it is in the nature of consortia built to respond to a competitor — Microsoft in this case — rather than to market needs.

The problem with consortia is that they contain the seeds of their own destruction. They're composed of companies that are temporary allies at best. Sort of like Vichy France and Germany in the 1940s. Eventually, temporary allies do what comes naturally: They fight each other.

GET SERIOUS

Did Sun really believe that HP — a hardware company predominantly — would not eventually do whatever it could to blunt the efforts of its most ardent competitor in the Unix space, namely Sun?

Remember when the Open Software Foundation was formed? There stood all those ardent competitors of the time — Digital and IBM and others — arms linked on stage for the press photos as they banded together to . . . to do what? Create better software? No, to create a united front against Unix. That effort failed, of course.

ENEMIES DISUNITED

Remember the Micro Channel Architecture? What was that, a better PC mousetrap?

Or just the manifold expression of the mutual dislike of IBM and Compaq in the battle for PC hardware dominance? Clearly it was Compaq and IBM knocking heads rather than racing each other to truly serve the PC customer. That effort failed, too.

Java may fall apart for more practical reasons. *Computerworld* last week reported that Java development tools are "in their infancy, lagging behind other types of enterprise-oriented tools."

I say it's just another unholy alliance falling apart for all the right reasons. □

Editor in chief at Computerworld *from 1986 to 1996, Laberis is now president of Bill Laberis Associates, a consulting and publishing company in Holliston, Mass. His Internet address is bill@laberis.com.*

Something for nothing on the 'net

David Moschella

Despite the best efforts of many powerful commercial interests, the ability of people to get things for free on the Internet is still gaining momentum.

Consider: Netscape has been forced to once again provide free browsers; the use of both Apache and Linux freeware continues to grow; and free electronic mail, 'net radio, "buddy systems" and home pages mark the beginning of an era of no-cost network services.

This wasn't supposed to happen. Conventional wisdom had it that this year many free World Wide Web offerings would hit the wall and pay-per-service strategies would start to take hold. Much has been written about whether Michael Kinsley's online magazine, *Slate*, will persuade readers to spend $20 per year for a subscription, but that story pales in comparison with the avalanche of activity headed in the other direction.

What's up?

There are three main types of free Internet offerings: community-developed software, advertising-supported services and strategic (sometimes temporary) vendor giveaways. Each has its own dynamics, motivations and value.

Traditional freeware products, such as Apache's Web Server software and the Linux operating system, come out of the Web community in that the people who create them are also the people most likely to use them. Their widespread adoption worldwide continues to confound IT software vendors.

Although it doesn't pose a direct threat to Microsoft, freeware does provide perhaps the last line of defense against Bill Gates' potentially unbridled power. After all, the Web programming community collectively has far more resources than even Microsoft and is largely immune to pricing, bundling and tie-in sales pressure.

Lack of support might seem a fatal freeware weakness, but there's nothing to stop a company from leaping into the Linux or Apache support services business.

In contrast with freeware, which has been around for many years, the rise of advertising-based free services is a dramatic and largely unprecedented Web development. Name another medium or industry that delivers customized individual services at no charge. Today's free E-mail, home pages and buddy systems (software offered by America Online and others that tells you when friends or acquaintances are online) are just the beginning. Important finance, health care, telephony, file storage and other services are already emerging.

What makes advertising-supported services exciting is that only on the Web do software and services have the same economies of scale. To an economist, that means the Web is one of the few places where the marginal cost of incremental services is effectively zero. As I will address in a future column, the implications of that will prove extraordinary.

Bucking most predictions, more and more value is simply being given away.

Ironically, the third type of freeware — strategic vendor giveaways — gets the most media attention but is actually the least intellectually interesting. Vendors give products away to launch markets, take share from competitors or create demand for related products and services. Those diverse motives create today's wide range of market reactions. One person's consumer benefit is another's predatory tactic.

Happily, as Web use increases, today's trends seem likely to continue. Who would have thought that such strange bedfellows as the Web developer community, the advertising industry and vendor self-interest would combine to create a culture where more and more value is simply being given away?

Don't pinch me. □

Moschella is an author, independent consultant and weekly columnist for Computerworld. *His Internet address is david_moschella@cw.com.*

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If you've ever installed a 6-20kVA, non-redundant, legacy UPS system in a datacenter, you know the challenges: installation is a struggle, maintenance is a challenge, power upgrades are unheard of, and hardware tends to be unreliable. In fact, most legacy UPSs were designed for electrical and manufacturing applications and not with the needs of today's sensitive datacenters in mind. Worst of all, with a single point of failure, the legacy system is all too interruptible.

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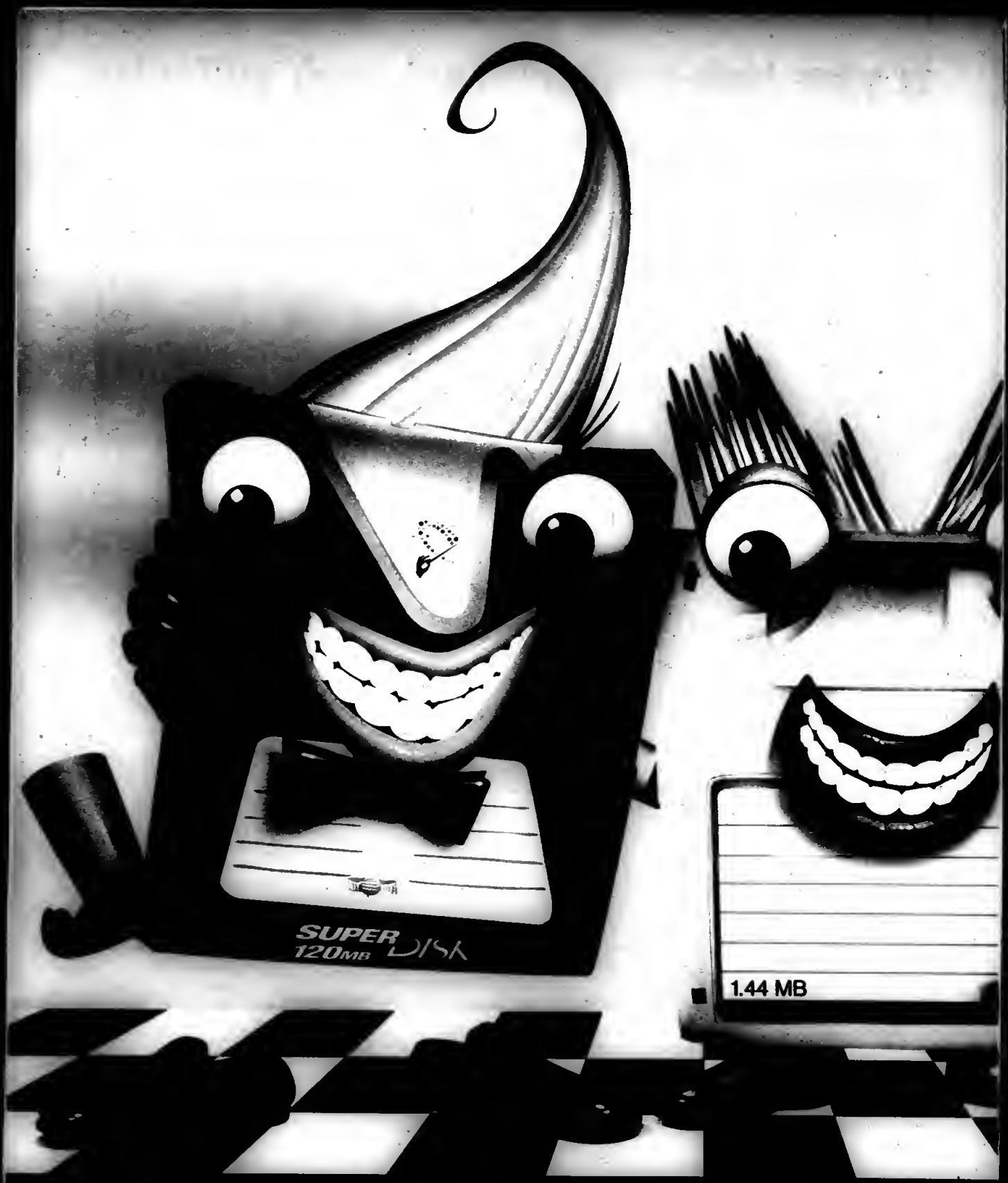
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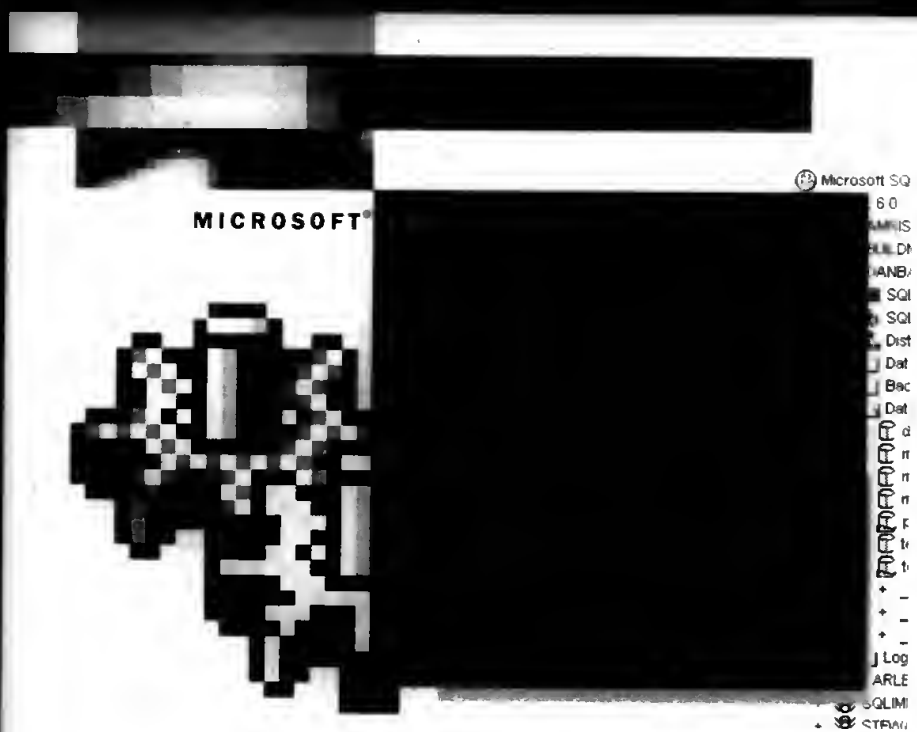

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A Message from Bill Gates

One of Microsoft's goals has always been to provide technologies that enable organizations to produce rich applications, to improve productivity and to lower the cost of ownership. Our strategy is to provide continued innovation through the evolution of the Windows platform. The Windows World Open is a rare opportunity for us to confirm that we're achieving this goal and to recognize excellence in custom application development."

Over the past seven years, the Windows World Open has brought together some of the brightest and most creative people developing Windows applications. The competition showcases the versatility and power of the Microsoft Windows operating system, and its increasing ease of use for development and deployment of sophisticated business solutions. Since creating these solutions requires the collaborative effort of in-house and third-party developers, the Windows World Open also applauds third-party solution providers and recognizes the key role they play in advancing many of the showcased applications.

I look forward each year to seeing how companies from around the world have taken advantage of the full spectrum of Windows operating solutions and third-party tools to create great applications of immense value to their organizations. Each year the applications submitted reach new levels of quality and ingenuity. This year's contest has been especially exciting. For the first time, the competition included applications written for Windows CE-based handheld devices. There were also more applications entered that take advantage of the endless range of possibilities of the Internet as a business tool. Hundreds of entries from 14 countries were screened by a world-class judging panel assembled to face the challenge of evaluating some of the best applications ever submitted.

I'm proud that Microsoft, along with Computerworld and ZD COMDEX & FORUMS, is a sponsor of the Windows World Open, the longest running technology awards program in our industry. I would like to personally congratulate each of the finalists for raising the standard by which future Windows applications will be measured.

Bill Gates

Chairman/CEO
Microsoft Corporation

Windows World Open April 20-23, 1998 in Chicago

Windows World Open

Seventh Annual Windows World Open

The Windows World Open is the premier international competition honoring the best in custom Microsoft® Windows® development. Now in its seventh year, the contest recognizes developers for skill and innovation in the development of advanced mission-critical applications that are making a significant difference in how business is done today. The program also highlights the key role of third-party solution providers and the wide variety of development tools that give these applications a high degree of integration and refinement.

This special publication profiles the 1998 Windows World Open finalists. These finalists will go on to compete live on the show floor in the Windows World Open Pavilion at WINDOWS WORLD '98, April 20-23 in Chicago.

For the first time, the competition includes custom applications written for Windows CE-based handheld devices, as well as applications for the Windows 3.x, Windows 95 and Windows NT® operating systems. These applications must have been developed to meet a specific challenge for a particular business or organization, deployed by the contest entry deadline, and they may not be available for resale.

Today, corporate developers and their solution providers face a number of issues associated with legacy systems, the Internet, intranets, adhering to company standards, and more, which they must address through their custom applications. Resolving these issues takes skill, ingenuity and focus. Contest entrants used hundreds of third-party tools to create their applications, demonstrating the wide range of tools available for developers on the Windows platform.

This year's competition included hundreds of entrants from 14 countries. Participants were screened by an international panel of independent judges who selected three finalists in each of the nine application categories:

- Communications
- Energy/Utilities
- Financial/Insurance Services
- Government/Justice and Public Safety/Education
- Healthcare
- Manufacturing/Engineering
- Retail Services/Distribution
- Business Administration
- Customer Management/Customer Service/Sales Force Automation

Windows World Open Program

The categories represent the broad range of technical solutions being created worldwide to solve challenges in the areas of core business or initiative activities and operations or support functions. Categories were organized by two key types: Market Applications and Internal Applications. Market Applications are applications that deliver value to an organization's core business efforts. Internal Applications are applications that deliver value and benefits to the support functions of an organization's operation.

At the Windows World Open Pavilion, you will be able to see firsthand how innovative technology is being used by companies of all sizes and types, from all around the world. Bill Gates, Microsoft Corporation Chairman and CEO, will personally announce the winners and present the awards at a special Awards Ceremony following his keynote address on Monday, April 20.

In addition, finalists will share how they turned software solutions into winning applications at the Windows World Open Solutions Symposium. The Symposium, a full-day COMDEX/Spring '98 conference, focuses on the practical application of custom development by highlighting real-world solutions, from concept to deployment. Speakers will include IS management from finalist organizations, third parties who supported the winning applications, and the 1998 Windows World Open judging panel.

The Windows World Open provides the contest finalists ongoing exposure as technology leaders throughout the year, as well as at WINDOWS WORLD '98. Past finalists and winners have reported quicker funding for future projects, improved results from recruiting efforts, and an enhanced reputation with customers.

Windows World Open Activities

WINDOWS WORLD '98 • April 20-23, 1998 • McCormick Place, Chicago, Illinois

- Finalist applications on display: April 20-23 in the Windows World Open Pavilion, Booth #1236
- Awards Ceremony: Monday, April 20 10:15 am, following Bill Gates' keynote address
- Windows World Open Solutions Symposium: Tuesday, April 21

To register, go to the WINDOWS WORLD '98 web site at www.comdex.com, or call 781-433-1650.

The Windows World Open is produced by Janet Church & Associates, Inc. For details on this year's contest, visit the Web site at www.wwopen.com. To participate in the 1999 Windows World Open, please email wwo@jcai.com, or call 800-829-4143 (206-505-7839 outside the US/Canada).

◀ Microsoft Corporation CEO/Chairman Bill Gates congratulates 1997 Windows World Open winner Antonio Wagner of the California State Automobile Association.

MARKET APPLICATIONS FINALIST

Arcadia S.R.L.

LT Broadcast System (LTBS)

A·R·C·A·D·I·A

The object of LTBS is to operate radio stations either manually or automatically with local or remote control.

LTBS provides a set of tools for generating a broadcast program. Capable of both manual and automatic operation, it allows for quick generation of content for long periods. Music and advertising are stored digitally and can be accessed in realtime by direct channeling through the playing devices.

Featuring a modular, Internet-enabled architecture, each module is an active document running on a browser allowing for very flexible and efficient operations.

Operator costs have been reduced 70% and overall costs have been reduced by 35%. Production has increased dramatically, going from one radio to four radios operating 24 hours a day. Additional economic benefits are realized by reducing claims for ads programmed but not aired.

TOOLS USED

- Third party developer: LT Sistemas, Santa Fe Argentina
- **MicroHelp:** 3-D Gizmos 2.10
- **Microsoft Corporation:** MS Windows NT Server 4.0, MS SQL Server 6.5, MS Internet Explorer 4.0, MS Visual Basic Pro 5.0, MS Active Server Pages 2.0, MS Active X Data Objects 1.5, MS Windows 95

MARKET APPLICATIONS FINALIST

DigitalXpress

DigitalXpress Broadcast and Receive Studio

DigitalXpress

DigitalXpress provides low-cost on-demand digital satellite broadcast services. DigitalXpress' services use direct-to-home entertainment consumer technologies and shared commercial communications satellite transponders. DigitalXpress customers provide their content (live, video/audio tapes, computer files, etc.) for transmission to their receive locations. A centralized facility schedules transmissions, identifies and controls content delivery security, manages uplink center resources and monitors and controls transmissions.

DigitalXpress Broadcast and Receive Studio, which represents the core operations delivery system for video, audio and data delivery services, provides transmission scheduling, monitoring, management and reception of satellite broadcasts.

The application, by minimizing day-to-day operating expenses, addresses large market segments requiring cost-effective, reliable delivery of high-quality video, audio and data. The market effect of providing superior customer service and flexibility via a computer-controlled operational scheduling application adds significantly to the customer benefits message and market visibility.

TOOLS USED.

- Third party developer: PowerThought, Redmond, WA
- **Asymetrix:** InfoModeler 1.5
- **Microsoft Corporation:** MS Visual Basic Enterprise Editor 4.0/5.0, MS Access 7.0, MS Visual C++ 4.0, MS Source Safe 5.0

MARKET APPLICATIONS FINALIST

Southern NE Telecommunications Corp.

Repair Answer Point System (RAPS)

SNET
We go beyond the call

Southern New England Telecommunications (SNET) provides communications, information and entertainment for more than one million Connecticut homes and businesses.

RAPS gathers data from multiple legacy systems and tests customer lines. Thus, the repair answer point agent can respond to customer calls quickly while being provided with a "360-degree view" of customer data. This enables the agent to negotiate the service commitment time and premise access during the initial contact with the customers. On-line aids and better organized, more meaningful data help reduce call duration and training time.

With a ready access to data and a flexible development base, RAPS can support telecommunication industry changes.

Developed as part of SNET's reengineering program, RAPS has streamlined operations by combining the answer point and test functions within the centers and provides for busy-time overflow between various work groups. RAPS provides more consistent and accurate information, assists in streamlining downstream processes and minimizes the amount of rework and manual hand-offs.

TOOLS USED:

- **IBM:** IBM AIX 4.1.5
- **Informix Software:** Informix DBMS 7.14
- **Microsoft Corporation:** MS Visual Basic 3.0/4.0
- **Sheridan Software Systems, Inc.:** VB Assist 3.0

MARKET APPLICATIONS FINALIST

Chevron U.S.A. Production Co.

VISA – Your Passport to Data

Chevron U.S.A. Production Company is the domestic upstream company of Chevron Corporation which explores, develops and produces crude oil, natural gas and natural gas liquids in the U.S. Studies within Chevron have determined that 40-60% of a professional's time is spent seeking, gathering, integrating and verifying data. The VISA application addresses this issue. It is a common geographical desktop application for all disciplines (e.g., earth scientists, engineers, landmen, technicians and financial analysts) to view data from the virtual corporate data warehouse, which consists of legacy, core business and evolving mission-critical systems spanning multiple servers, technologies and locations. VISA provides the end user with an intuitive means of browsing and analyzing the virtual data warehouse. Additional functionality enables users to find, select, integrate, filter, graph and export data to business and specialized analysis tools necessary to conduct different business processes. The VISA application has consistently produced an average of 10-35% productivity gains across the board.

TOOLS USED

- Third party developers: Andersen Consulting, Houston TX; William McKenzie, Houston TX; Dale Anderson, Louisville CO
- **Autodesk:** OEM Drawing Engine 1.0
- **Blue Sky Software:** RoboHELP 95
- **Microsoft Corporation:** MS Foundation Classes (MFC) 4.0, MS Exchange 5.0, MS Visual C++ 5.0, MS Excel 7.0, MS Word 95
- **Oracle Software:** Oracle 7.3
- **Powersoft Corporation:** PowerBuilder 5.0, Power Designer 5.0
- **Sybase Corporation:** Visual Components First Impressions 2.01

MARKET APPLICATIONS FINALIST

Transneft

Russian Oil Pipeline Supervisory Dispatch and Control System

JSC Transneft operates and controls more than 45,000 kilometers of oil pipelines in the Russian federation. 99.5% of Russian oil is transported to oil refineries and terminals over Transneft's pipeline network. The Dispatch and Control application allows data collection and operation of entire pipelines from 20 districts, ten regional dispatch offices and the central dispatch office in Moscow. Data is transmitted over Transneft's intranet using satellite channels. Currently the application operates with 185,000 signals and 1,500 specially designed screens.

TOOLS USED

- Third party developers: Elesy, Tomsk, Russia; Ikonics Inc., Foxborough, MA
- **Iconics, Inc.:** Genesis for Windows 3.52
- **Microsoft Corporation:** MS Visual C++ 5.0, MS Office 97, MS Windows 95
- **Oracle Software:** Oracle 7.3

MARKET APPLICATIONS FINALIST

Tennessee Valley Authority

Fossil Unit Monitoring and Evaluation System (FUMES)

The Tennessee Valley Authority (TVA) is a federal corporation, the nation's largest electricity producer, a regional economic development agency and a steward of the Tennessee River basin.

FUMES is an application in use at all 11 TVA coal-fired plants. Plant process data is collected from a variety of input devices and stored in a common format from site to site. Currently, 14 types of input devices are supported. The FUMES client software provides a GUI for view and analysis of the data. Through use of dynamic NFS (Network File System) drive mapping, any FUMES client on TVA's WAN may view realtime or historical data at any site. Six functions are provided for data analysis: X-Y (trend) plots, standard spreadsheet, group (tabular) display, plant mimic, custom spreadsheet and alarm summary.

FUMES has proven itself a valuable tool by enhancing plant performance, reliability, availability and cost reduction.

TOOLS USED

- **Bennet-tec:** MetaDraw OCX 1.01
- **FTP Software, Inc.:** FTP Interdrive 95 NFS Client 2.0
- **Microsoft Corporation:** MS Visual Basic 5.0
- **Shapeware Corporation:** Visio 4.0
- **Thinking Man Software:** Dimension 4.1
- **Visual Components:** Formula One 3.0

MARKET APPLICATIONS FINALIST

Insure One®

Lead Electronic Automated Distribution System (LEADS)

Insure One®, The Insurance Superstore, was established in December 1980. Insure One is a full-service agency specializing in auto, home, life, health, business and other lines of insurance.

Insure One internally developed Lead Electronic Automated Distribution System (LEADS) to capture as much of the Internet insurance market as possible in Illinois and Indiana. LEADS, a link within Insure One's web site, provides the Internet user with on-line, realtime quotes. LEADS distributes all quotes to the next available Insure One sales representative using a custom-designed e-mail form that contains quote details and allows the sales rep to add a follow-up date and diary notes.

Insure One considers the Internet market one of its top three strategic initiatives for 1998 and beyond. The goal was to design LEADS to be fast, easy-to-use and provide the necessary information to enable the sales force to close more Internet sales.

TOOLS USED

- **AMS:** Micro Magic Ratet
- **IBM:** OS/2 Web Server
- **Microsoft Corporation:** MS Outlook 97, MS Active Server Pages 2.0, MS Windows NT Server 4.0, MS Access 2.0, MS SQL Server 6.0, MS Internet Information Server 3.0, MS Visual Interdev 1.0

MARKET APPLICATIONS FINALIST

MetLife

MetLife Corporate Billing System (CBS)

MetLife

MetLife's Corporate Billing System provides a single image payroll deduction process for multiple insurance products and services to external client companies.

The products are employee paid, voluntary coverages such as home and auto insurance, Long Term Care, Universal Life, Variable Universal Life, Traditional Life Products and Voluntary Dental Insurance.

The system encompasses billing, remitting and cash processing, eliminating the need for a client company to interface with each product's own payroll deduction system.

The Corporate Billing System also provides MetLife with the opportunity to be a "benefits gatekeeper" for an employer in an environment where payroll processing companies, banks, brokers and third-party administrators are working with outside manufacturers and readying themselves to be active in the voluntary benefits marketplace.

TOOLS USED

- Third party developer: Linc Systems, Bloomfield, CT
- **Attachmate:** Irma 1.1
- **IBM:** CICS 3.3, COBOL II 3.2
- **InterSolv:** PVCS Version Manager 5.2
- **Micro Focus:** Micro Focus Workbench 4.0
- **Microsoft Corporation:** MS Word 95, MS SNA Gateway 2.0
- **Powersoft Corporation:** PowerBuilder 5.0
- **Rational Software:** SQA 6.0
- **Sybase Corporation:** MDI Gateway 2.05, Open Client 10.0
- **TechSmith:** Snagit32 4.1

MARKET APPLICATIONS FINALIST

Prudential Investments

Prudential Investments Common Front End (CFE)

Prudential Investments

The Prudential Investments Common Front End (CFE) unites multiple host systems with a single customer service Visual Basic workstation.

The workstation application interfaces to ICR/OCR imaging and workflow, fax in and out and document management applications. The end result is a customer service workstation that allows any representative to service any Prudential Investments customer in a paperless environment. This level of system and data integration has vastly improved operations efficiency, flexibility, service and has substantially decreased time to market.

TOOLS USED:

- **Associated Solutions, Inc.:** IC R3.3.0
- **DocuCorp:** Formaker 2.0
- **Eastman Software:** Imaging Server 1.3, Eastman Software Workflow 1.3
- **Microsoft Corporation:** MS Windows NT Server 4.0, MS SQL Server 6.0, MS Visual Basic 3.0/4.0, MS Visual C++ 5.0

MARKET APPLICATIONS FINALIST

Farm Services Agency, U.S. Dept. of Agriculture
Electronic Bid Entry System (EBES)

The United States Department of Agriculture (USDA) procures more than $2 billion of commodities annually for export under its Foreign Food Aid for Humanitarian Assistance Programs. The goal of these government programs is to distribute food (commodities) to hungry and starving people throughout the world. These commodities are purchased from vendors across the U.S.

The Electronic Bid Entry System (EBES) automates the bid entry portion of the commodity procurement process. The application allows for invitation and bid creation, public/private encryption of the bid, bid transmission via the Internet, and integration to the mainframe legacy bid evaluation system. EBES is one of the first electronic sealed bid systems in the federal government arena.

EBES reduces errors and processing time and increases bid security and vendor competition. With EBES it is now possible to receive bids and award contracts in the same market day.

TOOLS USED

- Third party developer: Electronic Data Systems (EDS)
- **ForeFront:** ForeHelp
- **FTP Software, Inc.:** FTP 4.0
- **IBM:** DB2, AIX, MVS
- **Microsoft Corporation:** MS Windows 95
- **Netscape:** Netscape Suite Spot Server with SSL 3.0
- **Powersoft Corporation:** PowerScript 5.0, PowerBuilder 5.0
- **Sybase Corporation:** S Designer 5.0, SQL Anywhere 5.0, Sybase Open Client 10.0.0.2, Sybase System 10 10.0.03, Sybase Net Gateway for DB2, Transact SQL
- **VisCrypt:** Pretty Good Privacy (PGP) 4.0

MARKET APPLICATIONS FINALIST

National Reference Library
MIDAS

The National Library Board of Singapore's mission is to expand the knowledge and learning capacity of Singapore. One of the targets is to create a modern digital information repository.

The library launched the Multimedia Information Delivery Access System (MIDAS) as a showcase system in January 1997. Built as a networked application that spans across 80 nodes and five servers, the system presents most of the library's services through a user-friendly access point using an effective multimedia interface. The system allows users to easily search and use analog and digital audio-video titles, CD-ROM titles, multilingual web sites and OPAC (Online Public Access Catalog) regardless of content location.

A help desk application was also developed to ease system manageability. Features include realtime monitoring, remote restart and shutdown of specific nodes and user-administrator collaboration.

By encouraging self-service, the system reduces wait time and improves the library's level of service cost effectively. More importantly, it improves information access by library patrons.

TOOLS USED

- Third party developer: Adroit Innovations Pte. Ltd., Kaki Bukit Te, Singapore
- **Adobe:** Premiere 4.2
- **Dataware:** Spyworks 5.0
- **Microsoft Corporation:** MS Visual Basic 5.0, MS Chat Server 1.0, MS Visual C++ 5.0, MS Windows NT 3.0, MS SQL Server 6.5, MS Windows 95, MS Internet Information Server 3.0, MS Internet Explorer 3.02, MS Visual Source Safe 5.0, MS Windows NT Server 4.0

MARKET APPLICATIONS FINALIST

U.S. Navy, Commander, Airborne Early Warning Wing, U.S. Pacific Fleet
JTIDS Moving Map Tactical Information Display System (JMMTIDS)

The Commander Airborne Early Warning Wing Pacific is responsible for the operation of the Navy's Airborne Early Warning Squadrons for the Pacific Fleet. The mission of the Navy's Early Warning aircraft is to provide carrier-based airborne battle direction, advance surveillance and threat warnings to deployed battle groups.

JMMTIDS processes and displays realtime target data from a legacy military wireless data communications system aboard the Navy's E-2C Hawkeye Airborne Early Warning aircraft. The system provides a tactical situation awareness display in the aircraft cockpit. Aircrew awareness is dramatically improved by combining the tracking picture with a GPS-based moving map. Navigation data is used to display present position and track data relative to satellite imagery and three-dimensional digital terrain elevation data.

JMMTIDS satisfies a long-standing requirement for a cockpit tactical display in the aircraft at low cost.

TOOLS USED

- Third party developers: Anzus, Inc., San Diego, CA; Broad Reach Technologies, Inc., Dana Point, CA; Dubbs and Severino, Inc., Irvine, CA; Jet Propulsion Laboratory (JPL), Pasadena, CA
- **Map Info:** Map-X 3.0
- **Microsoft Corporation:** MS Windows NT Workstation 4.0, MS Flight Simulator 98, MS Visual Studio 97, MS Visual C++ 5.0, MS Access 97, MS Excel 97, MS SQL Server 6.0, MS Windows NT 3.0, MS Visual Basic 5.0, MS Windows CE 2.0

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MARKET APPLICATIONS FINALIST

N.Y. Dept. of Veterans Affairs Medical Center

VA Pedorthic CAD/CAM System

The VA Pedorthic CAD/CAM System is an application for computer-aided design and manufacture of custom orthopedic footwear for U.S. Veterans and other patients suffering from neuromusculoskeletal pathologies, injuries and biomechanical disorders of their feet and ankles.

The Pedorthic CAD/CAM System enables pedorthists, for the first time, to accurately and consistently design and manufacture custom orthopedic footwear. Timely delivery of effective pedorthic care with the System is helping prevent physically and fiscally costly foot trauma and ulcerations (and frequent ensuing amputations) that peripheral vascular diabetic patients often incur. The System-increased productivity is helping offset the shortages of skilled pedorthists. The System's conversion of patients' records to electronic format is helping speed access to patient records and reduce associated physical storage needs and costs.

TOOLS USED

- **Microsoft Corporation**: MS Developer Studio 97, MS Word 95, MS Visual C++ 4.0

MARKET APPLICATIONS FINALIST

Quantitative Medical Systems

Focus 2000™

Quantitative Medical Systems (QMS) provides innovative information solutions to the dialysis field. Focus 2000 assures that member dialysis groups reduce unproductive staff time, control costs and speed reimbursements for all related activities all the while delivering quality care.

Dialysis facilities provide treatment, procedures and medications required by a unique patient group whose kidneys do not function. In dialysis, a chronic treatment, patients are commonly treated thrice weekly for many years. Information systems designed for the general medical field are not suitable and many dialysis providers lose significant revenue because of difficulty in complying with insurance reimbursement regulations due to using inappropriate systems. The tedium of data collection, bill production and claim submission often leaves no time for collections.

Because Focus 2000 is designed to adhere to all the complexities of the field, staff are less frustrated and spend most of their time collecting for services.

TOOLS USED

- **Blue Sky Software**: RoboHelp 4.0
- **Citrix**: WinFrame
- **Logic Works**: Erwin 2.6
- **Microsoft Corporation**: MS Project 4.1, MS Windows NT 4.0
- **Oracle Software**: Oracle 7.3
- **Powersoft Corporation**: PowerBuilder 5.0

MARKET APPLICATIONS FINALIST

Trinity Hospital Emergency Physician Group

Ed-Web-Write

Ed-Web-Write is a medical chart generating application. A busy physician is now able to generate a comprehensive medical chart in less than three minutes. The application uses web-like documents and forms as a primary source of data entry. A server application then generates a report in standard medical prose.

TOOLS USED:

- **Microsoft Corporation**: MS Internet Explorer 4.0, MS Front Page 97, MS Word 95

MARKET APPLICATIONS FINALIST

Hunter Engineering Company
PicEdit

HUNTER Engineering Company

Hunter Engineering Company is a leader in automotive service equipment, offering state-of-the-art wheel alignment systems, wheel balancers, brake lathes, tire changers, lift racks and brake testers. Hunter Engineering's premier product is WinAlign, a Windows-based computerized wheel alignment system.

PicEdit is an image processing and translation tool utilizing a graphical interface that allows the overlaying of text and the identifying of hot spots for key points of interest on digital images of vehicles. PicEdit has a database containing coordinates for placement of text on a digital image and multiple language text strings that allow on-the-fly switching between languages. PicEdit has been used successfully by translators throughout the world to create a database of more than 2,000 images with text in 20 languages. The PicEdit database includes 22,000 text strings as well as 69,000 hot spots that identify the location of vehicle parts on the images.

TOOLS USED

- **Accusoft:** AccuSoft Image Library 5.0
- **Microsoft Corporation:** MS FoxPro, MS Visual Studio 5, MS Visual C++ 5.0
- **Sequiter Software:** Code Base 5.1

MARKET APPLICATIONS FINALIST

Packard Bell NEC, Inc.
Manufacturing Control System (MCS)

Packard Bell NEC

The Manufacturing Control System (MCS), developed by Packard Bell NEC's SMT division, is a "next generation" shop floor control system. MCS combines all the traditional aspects of realtime process controls, workflow management, statistical process controls, total quality management and on-line documentation into one consolidated system. The MCS meets the SMT division's need for realtime process control and operational visibility by providing yield trends, statistical process control measurements and defect charts that are automatically updated every few seconds.

TOOLS USED

- **MicroHelp:** VB Tools 5, Muscle VBX 1.0
- **Microsoft Corporation:** MS Visual Basic 5.0, MS BackOffice 2.5
- **Sheridan Software Systems Inc.:** Developers Toolkit
- **Software FX:** Chart FX 3.0
- **Visual Components:** ActiveX Gallery 1.0

MARKET APPLICATIONS FINALIST

TERMO
Mineral Wool Production Supervisory Computer Vision System

TERMO

Termo is a manufacturer of mineral wool for applications such as thermal insulation, fire protection and sound insulation.

The Mineral Wool Production Supervisory Computer Vision System is used for monitoring, automatic control and regulation of the key parameters of mineral wool production. The application regulates the jet position while the jet of molten rock flows onto a system of rotating wheels, which is critical to product quality and quantity. The monitoring system is based on computer vision because of the hostile environment and inaccessible space in the production chamber. The natural fluctuations of the jet position are detected by the video camera and analyzed by a computer. The results of the analysis are used for regulation of reservoir position with molten rock in realtime. Additionally, the application regulates the melting process of rock in the furnace. The application also measures several other parameters of production. The software enables the graphical presentation of data while the regulations and measurements operate continuously in the background.

TOOLS USED

- **Microsoft Corporation:** MS Visual Basic 3.0/4.0, MS Visual C++ 2.1, MS Help Compiler 3.1

MARKET APPLICATIONS FINALIST

AceNet, Inc.

AceNet

AceNet

The AceNet Application is a custom software package written to provide unattended remote delivery, operation and management of multimedia components and content such as music, graphics, audio, and video for one or 10,000+ business locations, whether local or remote, in other cities, states and countries, all without leaving your office. It operates completely unattended at the business locations. AceNet plays background music, advertisements, welcome messages, audio announcements, instructions, and if monitors or TVs are used, product graphics, full motion video clips or movies. It handles all communication tasks between the host server and all client remote locations. A Script Manager composition and delivery tool is included for the client's use in preparing content and scripts. It provides proof of advertising with exact play dates and times along with other key reports and log information.

TOOLS USED:

- **Asymetrix.** Web3D 1.0
- **Cakewalk Music Software:** Cakewalk Professional 3.0
- **Corel:** Corel Graphics Pack and Tools
- **Crescent Software, Inc.** PIXX 6mm 4.2
- **MGI Software:** MGI Video Wave
- **Microsoft Corporation:** MS Windows NT 4.0, MS Photo Editor 3.0, MS Word 97, MS Visual Basic 5.0, MS Windows 95, MS Music Producer 1.0, MS Access 97, MS Internet Explorer 3.02, MS Internet Information Server 3.0, MS Image Composer 1.0, MS Image Editor 4.1, MS Active Movie 1.0
- **Passport Designs.** Encore 2.0
- **SoundTrek.** Jammer Professional 3.0
- **Syntrillium Software Corporation:** Cool Edit 2.0

MARKET APPLICATIONS FINALIST

ICET Arte Murano, C.A.

ARENA

ARTE MURANO ICET CRISTALERIA ARTISTICA

Arte Murano was founded in 1930 and is dedicated to the production of artistic crystal pieces called Murano Art. Arte Murano is also a leading tourist attraction in Venezuela, receiving more than 500 visitors daily.

ARENA is an information system that provides powerful modules. The point-of-sale module automatically computes multiple currency types and commissions for both tour guides and salespeople. It displays on-screen images of product and supports bar code readers and credit card purchases. Also included is a purchase order module that details orders. A smart module for computing sales, costs and historical data executes powerful ad-hoc queries automatically, making adjustments for inflation, which is important due to dramatic fluctuations in the Venezuelan economy. The production module is able to suggest production schedules based on complex linear programming methods and optimal production schedules. The inventory control function deals with inventory levels, labeling, image storing and suggesrs optimal product reposition points. The system is able to run on a handheld PC with an interface that integrates fully to ARENA.

TOOLS USED:

- **Apex Software:** TrueGrid Pro 1.1
- **Blue Sky Software:** RoboHelp 3.0
- **Crescent Software, Inc.** QuickPak 3.0
- **Crystal Services.** Crystal Reports 5.0
- **FarPoint Technologies, Inc.:** Tab Pro 1.1
- **Microsoft Corporation:** MS Access 2.0, MS Visual Basic 3.0/4.0, MS Visual C++ for Windows CE 1.0
- **Visual Tools, Inc.:** First Impression 4.1

MARKET APPLICATIONS FINALIST

Someday Isle, Inc.

SomedayIsle.Com Internet Toy Store Manager

[redacted]

Someday Isle, a family-owned and -operated retail store in Brattleboro, VT, provides quality toys, trains, hobbies and games. The SomedayIsle.Com Internet Toy Store carries the same merchandise as the retail store.

The SomedayIsle.Com Internet Toy Store Manager allows the store's small staff to manage the thousands of items contained in the Internet store. Information from a legacy point-of-sale system automatically updates a database of products to be sold on the Internet. Store personnel add additional information, including descriptions and photos. Once a day, this database is used to produce the actual web pages that feature a complete shopping cart system.

The site went live in mid-October 1997. The goal was to expand from the small Vermont town to a worldwide market. By January 1998, the store was regularly shipping all over the world.

TOOLS USED:

- **Adobe:** Photo Deluxe 1.0
- **Crystal Services:** Crystal Reports
- **Handmade Software:** Image Alchemy
- **Media4 Productions.** MacDrive 95
- **Microsoft Corporation:** MS Dos 6.2, MS Windows 3.11, MS Dial-Up Networking, MS Image Composer 1.0, MS Internet Explorer 3.02, MS Visual Basic 3.0/4.0, MS Jet Engine 2.5, MS Windows 95, MS Front Page 97
- **Netscape:** Netscape Navigator
- **PMP Computer Services.** Web Hosting Service (UNIX)
- **Qualcomm:** Eudora Pro 3.0

INTERNAL APPLICATIONS FINALIST

BankBoston Corporation

Electronic Customer File

Founded in 1784, BankBoston has $68.2 billion in assets and is the 16th largest bank holding company in the U.S.

The Electronic Customer File (ECF) provides a secure electronic solution for the storage and retrieval of credit-related documents for BankBoston's corporate customers. The bank's corporate lenders, the primary users of the system, have achieved significant productivity gains via automated data gathering, assembly of loan review, loan approval and user-defined packages, file contents reporting, and customized document queries. In addition to robust document management functionality, ECF enables corporate lenders to tap into multiple customer databases, creating a true customer relationship file from which lending decisions are made with greater ease. ECF contains a work-in-process environment where documents may be edited and reviewed by multiple parties prior to placement in the permanent file.

ECF brings BankBoston one step closer to achieving its primary goal of customer satisfaction.

TOOLS USED:

- **Microsoft Corporation:** MS Visual Basic 5.0, MS Windows NT Server 3.51, MS Excel 5.0, MS Word 95, MS Windows 95, MS SQL Server 6.0, MS Visual Source Safe 3.0
- **Novell:** NetWare Server 4.10
- **PC Docs Corporation:** Docs Open 3.5

INTERNAL APPLICATIONS FINALIST

Electronic Data Systems

TechLore

Electronic Data Systems (EDS) is a leader in the global information services industry, helping customers use information and technology to recast their economies and identify and seize new opportunities.

TechLore v1.0 is an enterprise application that gives employees an opportunity to interact in a virtual community founded on technical information. It integrates an information repository, discussion groups, skills inventory, interests inventory, project information, vendor information, workflow capabilities, employee collaboration/interaction and employee contact information. TechLore is designed to leverage information across EDS in a way that bridges geopolitical boundaries. It addresses one of the most significant challenges EDS currently faces: increasing the degree to which technical information is leveraged across the corporation. With TechLore, an employee can easily locate information without having prior knowledge of the contributor of the information. Alternatively, an employee can contribute information without having to know who will ultimately benefit from that information.

TOOLS USED:

- **Microsoft Corporation:** MS Internet Information Server 4.0, MS Visual Source Safe 4.0, MS SQL Server 6.0, MS Personal Web Server 4.0, MS Developer Studio 97, MS Visual J++ 1.1, MS Visual C++ 5.0
- **Software Artisans, Inc.:** SA-FileUp 2.0
- **Stingray Software:** Objective Blend 1.2

INTERNAL APPLICATIONS FINALIST

RR Systems, Inc.

Corporate Project, Time and Billing Management System

RR Systems is a software development and consulting company that specializes in creating custom database-driven software applications and systems integration for Fortune 500 companies. RR Systems developed this intranet/extranet application which can be utilized worldwide to enter and track employee time and materials for internal use. This application tracks job expenses, project management (budgeted and actual hours), payroll hours for hourly and salaried employees, personal time, cost of goods sold and employee productivity. Also included are billing/invoice generation, quote generation based on prior projects and dynamic report generation.

Development of this application has provided instant, accurate data access in a standardized format. All employee time and expenses are accounted for and correctly billed. Operating costs have been reduced and employee time is better utilized.

TOOLS USED:

- **Microsoft Corporation:** MS Visual Basic-Active X Documents 5.0, MS SQL Server 6.5, MS Visual SourceSafe 5.0, MS Visual InterDev 1.0, MS Internet Explorer, MS Authenticode, MS ADO 1.5, MS Windows NT Server 4.0, MS Internet Information Server 4.0, MS Transaction Server 2.0
- **VideoSoft:** vsOCX 5.0, vsVIEW 3.0

INTERNAL APPLICATIONS FINALIST

Experimental Aircraft Association

Event Management and Support System

The Experimental Aircraft Association (EAA), founded in 1953, is a 170,000-member international organization whose mission is to serve all of aviation by fostering and encouraging individual participation and access to aviation. EAA publishes five monthly magazines and hosts the annual Fly-In Convention, one of the world's largest and most significant aviation events.

EAA's Event Management and Support System addresses member processing and admissions during the annual Fly-In. Prior to the application, the processes were manual, requiring four people-months of post-convention work. The application ties together all sales and membership data into a central database via a wireless LAN. Attendee processing time is dramatically reduced, resulting in shorter lines and increased satisfaction. Overtime costs are eliminated and accuracy and efficiency are enhanced. Additionally, sales data is available immediately for nightly reporting and auditing.

TOOLS USED

- Third party developer: RR Systems, Inc., Brookfield, WI
- **Microsoft Corporation:** MS ODBC 2.5, MS Access 97, MS Visual C++ 5.0, MS Windows NT Server 6.5, MS Visual Basic Enterprise 4.0/5.0, MS Windows 95, MS RDO 2.0
- **Persoft Inc.:** Intersect Remote Bridge

INTERNAL APPLICATIONS FINALIST

First Chicago/Mercantile Services, LLC

EFTPS Customer Service

Two leading cash management service providers, First Chicago NBD Corporation and Mercantile Bancorporation, Inc., formed a joint venture to provide innovative technology solutions to entities in the government sector. In 1994, the U.S. Department of the Treasury's Financial Management Services (FMS) selected First Chicago NBD and Mercantile Bank as an agent to develop and implement the Electronic Federal Tax Payment System (EFTPS). First Chicago/Mercantile Services developed, implemented and now operates EFTPS, the largest electronic payment collection system in the world.

In early 1995, the Internal Revenue Service contracted for the development and operation of the EFTPS. This system allows taxpayers to create electronic tax payments through various methods such as their PC or touch-tone telephone. A significant component of the EFTPS is its customer service function. This function brings together multiple technologies for the purpose of providing fast, detailed and accurate information to the taxpayer.

TOOLS USED

- Third party developer: Furkon, Inc., Chicago, IL
- **Aurora Systems:** FastCall 2.03
- **Borland International, Inc.:** Delphi
- **Hewlett Packard:** HP UX 10.01
- **Informix Software:** Informix Online 7.13
- **Lucent:** PassageWay 2.31
- **Microsoft Corporation:** MS Windows NT Server 4.0
- **NCR:** TOP END 2.02

INTERNAL APPLICATIONS FINALIST

Hughes Supply, Inc.

QuoteIT!

Hughes Supply, Inc. is a leading diversified distributor of construction and industrial materials.

QuoteIT! automates the authoring of quotes for construction material produced by the Hughes Supply sales force. Using data extracted from several legacy mainframe systems, a salesperson can create an on-site quote for a customer and can manipulate the details in a variety of ways. Adjustments to product information such as cost, price and gross profit percentage allow the salesperson to produce a quote tailored to the customer's needs. The program also contains a contact management system to help the salesperson track customers, bonding agents, contractors, etc. Once created, QuoteIT! formats the quote information into a bid which can be printed via a portable printer for immediate distribution to the customer. Once the quote is accepted, QuoteIT! generates job start information critical for accounting and warehouse departments.

TOOLS USED

- **Adobe:** PhotoShop 4.01
- **BookMaker Corp.:** ClickBooks 2.0
- **Corel Technology:** Corel Draw Clipart 6.0
- **FMS, Inc.:** Total Access Analyzer 8.0
- **Media4 Productions:** EviewPro 1.0
- **Microsoft Corporation:** MS Publisher 8.0, MS Office 97 Developer Edition, MS Windows 95, MS Access 97, MS Windows NT Workstation 4.0

Windows World Open

Judging Panel

Windows World Open entries are judged by an elite panel of industry and IT experts, selected because of their in-depth knowledge of the Windows environment and custom development. The 1998 Judging Panel includes:

- , Executive Director, Chicago Research & Planning Group
- , Vice President and CIO MIS, Nestle USA
- , Vice President & Service Director, Meta Group
- , Chief Technology Officer, Shell Western E&P
- , Principal, Cooper Interaction Design
- , President, Currid & Company
- , Executive Director, Enterprise Architecture Development, Merck & Company
- , Principal, ETN Corporation
- , Sr. Software Engineer & Manager Consumer Banking Software Development, CONFIA, S.A.
- , CIO, Proctor & Gamble Company
- , Editor in Chief, Computerworld
- , Deputy Assistant Secretary for Information Resources, Dept. of Vererans Affairs
- , Vice President, First Chicago
- , Executive Editor, Computerworld
- , Technology Planner, Chevron Information Technology Company
- , Government of Canada
- , First Vice President, Merrill Lynch
- , Principal, Seaton Delta Consulting
- , Vice President, Product Strategies, J.D. Edwards
- , Principal Analyst, The Sullivan Group

"As a judge for the seventh annual Windows World Open, it is clear that this competition discovers software developers who in their own right are exceptional business solution pioneers. The competition is a zenith for new ideas, new strategies and the new faces changing our world with the powerful tools developed under the Microsoft Windows platform."

— Richard Arns, Executive Director, Chicago Research & Planning Group

"Custom applications fulfill a crucial technology need in organizations today because internal developers understand their companies better than anyone and can provide enormous benefits with innovative and specialized applications. I'm glad to be part of a contest that recognizes the value internal application developers provide to their organizations."

— Cheryl Currid, President, Currid & Company

There's a
big difference
between
wanting
a data warehouse
and

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Corporate Strategies

Case Studies • Trends • Outsourcing

Briefs

Tech to save Ameritech

Ameritech Corp. last week announced plans to cut costs by $3 billion during the next five years by eliminating jobs and service centers. The company expects as much as $1 billion in savings from technology — including artificial intelligence — that will make the company's trucking, cable television and other businesses more efficient. Chicago-based Ameritech also will close several facilities and lay off about 1,000 workers.

Keeping up with times

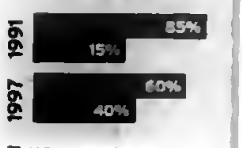
Keeping the business safe from electronic predators and keeping up with technology enhancements will be the biggest challenges for top U.S. executives in 2005, according to a survey commissioned by Deloitte & Touche in Wilton, Conn. Nearly 80% of senior executives at 409 major companies cited these two concerns, and 69% said retaining employees would be harder in 2005 than it is now.

Andersen, SAP team up

Andersen Consulting and SAP AG have joined forces to create a set of applications and services developed for the financial services industry. The first releases from the partnership, available in the fall, will target property and claims processing for the insurance industry. They will be based on the SAP Business Framework and Andersen's claims design processes.

OUTSOURCING ABROAD

By 2000, outsourcing by U.S. companies will comprise less than half of worldwide outsourcing activity. The trend from 1991 to 1997:



Base: 2,000 companies with annual revenue exceeding $50M

Source: The Dun & Bradstreet Corp., Murray Hill, N.J.

Food service duo takes orders online

By Thomas Hoffman

WHEN HE WAS director of operations at Gordon Biersch Brewing Co. in Palo Alto, Calif., Mack Tilling saw an opportunity to create an electronic order-processing service. The idea was to provide restaurateurs and their distributors a better way of routing orders than traditional telephone- and paper-based techniques.

ELECTRONIC ORDERING

That was five years ago. In that time, Tilling and brewery sidekick Ted Daley have used their business savvy, their willingness to learn some programming technology and the hot Silicon Valley investment community to launch an electronic-commerce venture aimed at the $350 billion U.S. food services industry.

Food service clients last year used the E-store system from the duo's Instill Corp. to process 97,000 purchase orders worth $180 million at a cost of $2 to $3 a pop, Daley said.

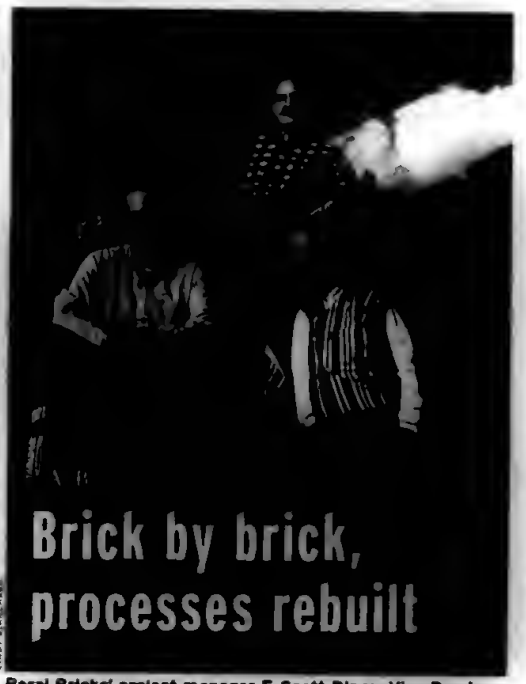
The entrepreneurs' timing seems prescient, coinciding with efforts by players in the food services industry to study how technology might make their business processes more efficient.

A report issued last year by El Segundo, Calif.-based CSC Consulting indicated that an industrywide deployment of electronic-commerce systems could yield participants $6.6 billion per year in savings on the purchase order process.

Mack Tilling (left) and Ted Daley built a food services electronic-commerce system that processed $180 million in orders last year

The study was conducted for the International Food Service Distributors Association in Falls Church, Va., and other food service industry groups, said Perry Fri, director of an industry-sponsored program called the Efficient Foodservice Response. That three-year-old program is similar to electronic-commerce initiatives in the retail industry

E-merchant, page 42



CINDY KIRKPATRICK

Boral Bricks' project manager F. Scott Dines, Vice President and Chief Financial Officer Ronald S. Henley and MIS director Richard Crandall (from left)

By Randy Weston

BORAL BRICKS, INC. is rebuilding its financial systems one module at a time.

And the Atlanta-based brick maker is doing so in rapid time by sticking to an implementation plan and avoiding any modifications to its Oracle Corp. applications package.

"Our general strategy is to do all we can to install the base software and then fit our business to the software," said Richard Crandall, director of MIS at Boral Bricks. "We do not want to put ourselves in the software business."

Boral Bricks, the largest brick maker in North America, is a $250 million division of $3.1 billion Boral Industries Ltd. in

Processes, page 42

CIO is star of hospital's recruitment initiative

By Tim Ouellette

WINCHESTER HOSPITAL IS getting personal in its IT recruiting efforts.

The Winchester, Mass., hospital is promoting its new chief information officer, Michael Gogola, in its recruitment efforts to demonstrate that the facility is moving in a new direction with information technology.

"I want to get people who embrace change"

"We wanted to attract the best and brightest people," Gogola said. "And we wanted something that would differentiate us" from the endless array of technical openings listed in the newspapers, he added.

That means Gogola's picture and his efforts to update the hospital's technology get prominent mention in newspaper ads. The result? Resumes are starting to come in at a good clip, according to a hospital spokeswoman, faster than during previous recruitment efforts.

The initiative is similar to the recruitment strategies employed in professional sports, where athletes often are willing to relocate to new teams to join up with successful coaches.

For example, several players followed National Football League coach Bill Parcells as he moved to different football teams during his career.

Observers agree that when workers are recruited for information systems, a major factor in their decision is the quality of IS management.

In a recent survey of IT workers conducted by executive search firm Paul-Tittle Associates, Inc. in McLean, Va., work-

CIO, page 42

E-merchant duo targets the food services industry

CONTINUED FROM PAGE 41

that are being driven by industry stalwarts such as Wal-Mart Stores, Inc. in Bentonville, Ark.

Tilling, 33, and Daley, 35, figured they could use existing technology to create an electronic ordering service for restaurants and distributors alike. And because Silicon Valley is fertile ground for venture capitalist funding, their Palo Alto-based concern was able to attract more than $9 million of it, Daley said.

Tilling found that just a few proprietary electronic ordering systems were being used in the food service industry.

NOT BAD FOR A BEGINNER

Tilling built E-store using Novell, Inc.'s AppBuilder, an object-oriented programming language for beginners.

Stanford University's Student Union cafeteria served as a test bed, and Tilling and Daley spent a year refining the system based on input from former university food service supervisor Ray Hernandez.

The key to Instill's success is that Tilling and Daley "both come from the [food services] industry and have an intimate knowledge of how purchases are made" in that area, said Chris Gwynn, a senior analyst at The Yankee Group in Boston.

Gwynn said he has seen other electronic-commerce start-ups crash and burn "because the principals didn't know their markets as well" as Tilling and Daley do.

Also instrumental to E-store's development was Jasmale Dhillon, general manager of the cafeteria at Hewlett-Packard Co.'s Stanford site, which is run by Marriott Corporate Services.

The E-store system has allowed Jasmale Dhillon, general manager of a Hewlett-Packard cafeteria, to slash the time it takes to place food orders – from hours to minutes

Dhillon began using the system four years ago. She was able to reduce the time it took her to place twice-weekly food orders for the cafeteria, which serves 1,500 people per day. The E-store system took 10 minutes, whereas the former Touch-Tone phone ordering system took one or two hours.

Instill has since landed more than 1,000 clients in 27 states across the U.S. and in Guam and Puerto Rico. Clients include Marriott in Washington, KinderCare Learning Centers, Inc. in Montgomery, Ala., and Outback Steakhouse in Tampa, Fla.

Besides building a team of 35 programmers and food services professionals, Tilling and Daley last year persuaded John Gilmer, former chief information officer at Sybase, Inc., to become Instill's chief operating officer and make sure E-store is reliable. □

Connecticut outsources the works

By Patrick Thibodeau
FALLS CHURCH, VA.

WHEN IT COMES to information technology, Connecticut is like many other states: Its systems aren't integrated and don't work efficiently.

The state's solution to that problem is to outsource every one of its IT assets, from desktop PCs to mainframes. The move springs in part from the same problems public-sector IT managers face when they want to hire qualified workers — heated competition for technical staff.

"Can you imagine me trying to compete with the folks in Silicon Valley for . . . Java programmers?" said John Flynn, chief information officer for the state of California. Flynn spoke at the State of States conference held here, which was sponsored by Federal Sources, Inc. and the National Association for State Information Systems. Fifteen states outsource some of their IT services, according to Federal Sources, but no state has attempted to go as far as Connecticut and outsource everything.

LITTLE COORDINATION

Rock Regan, Connecticut's chief information officer, said that state wants to fix the problems that have been created because "60-plus agencies have been allowed to go out and develop systems on their own."

The lack of coordination left the state with multiple data centers and networks and no uniform standards. Connecticut has about 1,000 information systems employees and spends about $200 million on IT each year. Regan said he believes that total may shrink as much as 15% with outsourcing.

Besides, Regan said, even relatively minor budget cuts could mean big savings. For instance, if outsourcing reduces the state's $10 billion annual budget by only 1%, it would save $100 million, he said.

But not everyone thinks outsourcing saves money. Outsourcing could end up costing, said Jim Youngblood, director of IT services for the state of Iowa. "Anytime you pay somebody to do something for you, you pay a premium for that. Nobody works for nothing," he said. □

Processes

CONTINUED FROM PAGE 41

Sydney, Australia. The international construction company is standardizing its operations on Oracle's financials package.

Typical quick-implementation programs, such as Oracle's Fast-Forward, require users to adapt their business processes to an implementation plan designed by the vendor or a consulting firm. Those plans cover 70% to 80% of core business processes and were designed for a user company's sort of business, such as manufacturing.

But Boral Bricks threw out Oracle's implementation plan. Instead, it used one developed by its parent company that covered the installation of about 70% of the system, said F. Scott Dines, project manager at Boral Bricks. "We went through the baseline analysis to make sure what our corporate headquarters had given us made sense. Where it didn't mix, we made changes to the setups," he said.

Boral Bricks implemented its first two modules, general ledger and accounts payable, in three months, starting the project Aug. 1 and going live three months later. That pace has continued, with fixed assets going live Jan. 1 and accounts receivable in full use March 1.

Boral Bricks is now moving to the second phase of the project, which includes implementing seven more modules, including order-entry and purchasing modules.

For end users, the vanilla implementation already is paying off. Boral's chief financial officer, Ronald S. Henley, said the company has reduced the time it takes to close general ledger and accounts-payable books from seven to five days. "A year ago, we were closing in nine days," Henley said.

He said his department eventually will use the time it saves to do more in-depth profit-and-loss analyses at specific Boral locations. "We measure by return on assets. So in order for us to measure an operation, we need to know what the asset investment is in that operation. This will let us work toward that goal," Henley said.

COSTS WERE TYPICAL

The cost of the software and consulting from Oracle was roughly $700,000 — about normal for quick implementations, according to analysts. The investment is to replace an aging DOS-based system.

Judith Hodges, an analyst at International Data Corp. in Framingham, Mass., said Boral Bricks' structured implementation is admirable. But, she said, its quick approach is best suited to smaller divisions of big companies with staffs large enough to handle the project. The benefits are the business knowledge their information systems team gains during implementation.

"There are companies that have the resources in-house to conduct this type of implementation, and it is a tremendous opportunity for them. But I'm not sure that many [midsize] companies have the [IS] resources to dedicate to such an effort," she said. □

CIO is star

CONTINUED FROM PAGE 41

ers cited the most important factors for being an effective manager in high tech: deliver results, and build effective and loyal teams. That is why strategies such as Winchester's are gaining ground and interest among IT recruiters, said Jim McMurrow, CEO of the Talent Alliance, a recruiting organization in Morrisville, N.J.

Gogola came to Winchester Hospital last May with 28 years of IS experience under his belt, most recently working on handheld technology for the health care industry.

He also was regional director of IS at Columbia/HCA Healthcare Corp. in Fort Myers, Fla., and Tampa, Fla., overseeing IS efforts at 18 hospitals.

His said his main goal at Winchester is to be a beta site for the latest handheld technology available, which requires that IS workers be ready to tackle leading-edge projects. "I want to get people who embrace change," and who will be able to adapt quickly to this new technology, Gogola said.

Positions advertised with this strategy include financial and clinical applications analysts and technical services manager.

Beyond testing new technology, the aim of Gogola's staff expansion is to break free of a dependence on outside consultants to complete technical projects at the hospital, he added. According to corporate recruiters, other efforts to personalize IS recruitment include emphasizing quality of life in different regions; providing on-site child care facilities; and offering free ski lift tickets during the winter for workers who submit qualified resumes. □

The Internet

Electronic Commerce • The World Wide Web • Intranets

Briefs

"The Internet . . . is the biggest thing to hit the way people meet since bars were invented."

— Al Cooper, clinical director at the San Jose Marital and Sexuality Center and an adviser on sex therapy at Stanford University

Smart checkbook

Electronic funds transfer vendor VeriFone, Inc. has invested in a Danville, Calif., company that is developing a checkbook that transmits data electronically to a PC. Personal Solutions Corp.'s ElectronCheck, due in the fourth quarter, will use standard paper checks with an electronic register that can record financial transactions in a retail store or when consumers pay their bills. The data could then be transmitted via wireless technology to a PC application such as Microsoft Corp.'s Money or Intuit, Inc.'s Quicken.

HTML mail

Trellix Corp. in Waltham, Mass., is making a beta version of its Web content distribution utility available for free at its World Wide Web site (www.trellix.com). The Trellix Trelligram Utility lets users E-mail multiple graphics-rich Hypertext Markup Language (HTML) files, streamlining the distribution of Web content. Recipients open the attachments and view them with a browser.

Sales force automation

UpShot Corp. in Redwood City, Calif., has announced UpShot Sales, a Web-based sales force automation tool. Besides traditional sales force automation functions, UpShot Sales supports collaboration and Web page monitoring using the same browser interface. The product will ship in the second quarter and costs $499 per client, plus $3,499 for the server.

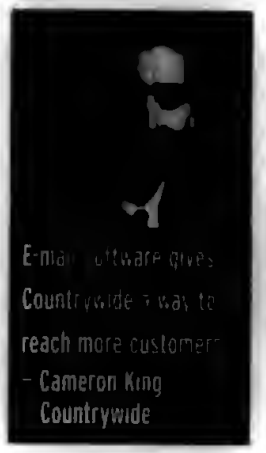
Customer service with a :-)

▸ Countrywide tests E-mail app to handle consumer queries

By Barb Cole-Gomolski

COMPANIES ARE getting the message that electronic mail can be used to improve customer service and boost sales.

Countrywide Home Loans, Inc. in Calabasas, Calif., for example, is testing an application that will automatically respond to E-mail inquiries made via the company's World Wide Web site.



CUSTOMER SERVICE OPTION

The lender already funds about $35 million in loans per month on the Web, and customers now receive the electronic equivalent of a form letter when they ask certain basic questions. The company is using Brightware software from Novato, Calif.-based Brightware Software, Inc. to send those responses.

By next month, however, Countrywide expects to be able to use Brightware to automatically answer even open-ended questions, said Cameron King, a Countrywide executive vice president. "We get a lot of people who say, 'Here's my income, and here's my down payment: Can I qualify for a 30-year loan?' " he said.

King and his team have been "teaching" Brightware how to respond to the queries by pro-

Countrywide, page 44

HP unfolds rambling map for its Electronic World

By Jaikumar Vijayan

HEWLETT-PACKARD CO.'s recently announced Electronic World strategy puts a shiny new wrapper around the company's ambitious Internet plans. But inside the package, there is little that is actually new.

In a rehash of announcements made during the past 18 months, HP earlier this month said it will deliver a range of products aimed at what it now categorizes as the E-Business, E-Commerce, E-Consumer and Extended Enterprise markets.

The categories range from low-end Internet appliances to products and services for secure electronic transactions and large electronic-commerce projects.

The company has been talking for months about the products and services, which it is developing with vendors that include VeriFone, Inc., Informix Software, Inc. and Gemplus SA in France.

The company's latest announcement simply reorganizes the categories without taking the opportunity to explain its Internet strategy clearly, analysts said.

"HP is developing a pretty good Internet [product] story, and ... it has the potential of combining this, its VeriFone unit, its printing and imaging group and others into a pretty

HP outlines, page 44

Wires aren't only things tripping up E-commerce

By Sharon Machlis
BOSTON

COMPANIES TRYING to make money on the Internet face obstacles far beyond those in technology and marketing, panelists said at last week's Internet Commerce Expo held here.

INTERNET COMMERCE EXPO

Organizational issues can bog down online operations, and insufficient planning can wreck online commerce efforts completely, they said.

CommerceNet's Randall Whiting: "The biggest challenge we faced wasn't technology; it was organizational"

Tax issues dashed the electronic-commerce plans of one office supply reseller recently, said Jon Abolins, senior tax counsel at Taxware International, Inc., a tax and finance consultancy based in Salem, Mass.

A week before the reseller's World Wide Web site was due to go live, it called Abolins to check on the interstate tax requirements. No one at the company had realized that because it was using distributors to ship to customers instead of a common carrier such as United Parcel Service, Inc., it would have to pay taxes everywhere the distributors had a physical presence.

That made the electronic-commerce picture enormously more complex.

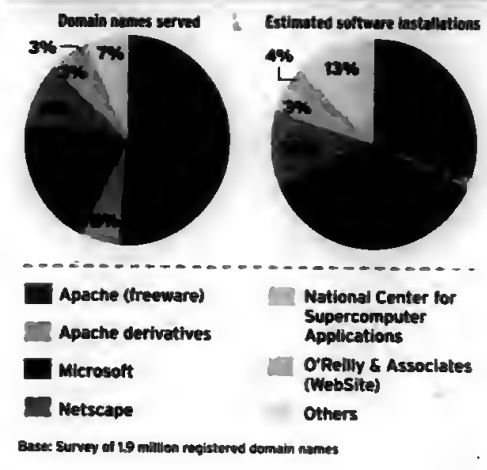
"It ended up killing the deal," Abolins said. Lesson from that debacle: Incorporate tax planning when structuring a Web venture, he said.

But interdepartmental rival-

Trip up, page 44

Snapshot

WEB SERVER MARKET SHARE



Base: Survey of 1.9 million registered domain names

Source: Ady & Associates, Inc., Callahan, Fla.

Countrywide tests E-mail app to handle consumer queries

CONTINUED FROM PAGE 43

gramming the rules of mortgage lending into the artificial intelligence system. "There's a huge amount of setup, but it's amazing how articulate you can make [the system]," he said.

The goal is to free up account executives so they can focus on closing deals instead of fielding mundane questions. Opening up the lines of communication to include E-mail also gives Countrywide a way to reach more customers, King said.

Applications such as Countrywide's represent one of the primary value propositions of the Web. – Chris Stevens, Aberdeen Group

John Chevalier, a team leader in Countrywide's Electronic Commerce Division, said the application will be a time-saver. "Many of the E-mails that we respond to fall into three or four general categories, like rate quotes, customer service issues, etc.," he said. Although manual responses to such questions are usually brief, "it is still a time-consuming process."

During peak periods, it isn't uncommon for customer service representatives to devote entire Saturdays to answering those E-mail messages, Chevalier said.

So far Countrywide's customers have responded positively to the prewritten E-mail messages, and King expects a similar reaction to the more free-form E-mail that will be handled by Brightware. "People just want an answer," he said.

Some products in this space were designed to manage the flood of E-mail messages by creating separate queues that resemble functional areas, such as customer service or sales. Those include Adante from Carlsbad, Calif.-based Adante; and Internet Message Center from Mustang Software, Inc. in Bakersfield, Calif.

Other E-mail software, including Brightware's and Select Response from San Diego-based Aptex Software, Inc., filters the contents of E-mail messages and either sends an automated response or forwards the E-mail to the appropriate person.

Applications such as Countrywide's represent one of the primary value propositions of the Web, said Chris Stevens, an analyst at Aberdeen Group, Inc. in Boston. "You can offset a lot of call center activity this way."

Jay Elshaug, service level manager at First American National Bank in Nashville, said he saw a reduced number of calls coming into the bank's call center once the bank started answering questions via E-mail.

The bank installed Adante's software, which automatically routes E-mail to user-defined queues.

Elshaug said the system also lets bank staffers manage their time more effectively because E-mail can be handled during off-peak times. But the customer service mix raises some issues. "You are dealing with the written word, so you need people who can communicate effectively in writing," he said. □

Technology, organization trip up E-commerce

CONTINUED FROM PAGE 43

ries can cause problems long before tax issues crop up.

In setting up an electronic-commerce site, "each day the biggest battles we fought were: Who owns it?" said Randall C. Whiting, president and CEO of CommerceNet, a nonprofit organization aimed at advancing Internet business.

"The biggest challenge we faced wasn't technology — it was organizational," Whiting recalled of a project for another company.

INFRASTRUCTURE

Also, figuring out who has responsibility for an electronic-commerce project can be a difficult corporate issue.

Such projects often start out largely independent of official corporate structure.

But once people see the Web site has growing importance, "you have organizations [within a corporation] vying for impact and control," Whiting said.

Successful sites often end up with a top executive that oversees strategy, information systems people that look after the infrastructure and ensure content gets posted properly on a site, and individual business units that develop content, he said. But information systems executives "need to learn the strategic importance of technology to marketing, or [they] will end up reporting to marketing," Whiting said.

If a chief information officer is concerned just with technology, a marketing executive could end up in charge of key decisions. Whiting also urged marketing executives involved in Web projects to get to know the technology behind them.

IT organizations have to come to grips with the fact that they have traditionally been charged with two things: technology issues and corporate knowledge.

And corporate information usually is in databases that are crucial to marketing and customer support. "You may want to separate [control of] the knowledge and infrastructure" to give each aspect of Web development proper attention, he said. □

HP tries to outline Internet strategy

CONTINUED FROM PAGE 43

compelling story," said Thomas Kucharvy, president of Summit Strategies, Inc., a consultancy in Boston. "But I have not yet heard it. I hope [HP's Internet strategy] is clearer to HP's customers than it is to me."

The latest moves may give a sense of direction to HP's long-term Internet strategy, but the company still needs to spell out what all of it means to customers, said David Krauthamer, director of information technology at Advanced Fibre Communications (AFC), a Petaluma, Calif.-based manufacturer of telecommunications equipment.

The four areas that HP's E-World is focusing on:

- **E-Business: Integration services for corporations to establish electronic-commerce sites**
- **E-Consumer: Products and appliances for home or consumer use**
- **E-Commerce: Product and services for secure electronic payments and transactions**

"I am not sure what HP's Internet strategy is apart from the fact that they are trying to piece together some third-party stuff," Krauthamer said.

One result: AEC, which is using HP's consulting services for a Baan implementation and uses HP's high-end Unix server hardware, is looking at a third party to help it put up an electronic-commerce site later this year.

"The Internet itself is a pretty abstract thing. ... If the vendor is not very, very clear about its plans, it's going to lose customers," Krauthamer said.

HP's E-Business Internet products will include software integration services and products for establishing electronic-commerce sites.

FEW DETAILS

Its E-Commerce products, meanwhile, will focus on secure electronic payments. HP is developing the products with companies such as VeriFone, which it acquired last year. Its Extended Enterprise program covers Unix and Windows software and hardware, and the appliances and services needed to run networks that use Internet protocols.

"The whole thing is a very general program that doesn't offer the customer details on a definite solution" for electronic-commerce applications," said James Garden, an analyst at Technology Business Research, Inc. in Hampton, N. H.

For instance, it has been almost a year since HP acquired VeriFone and its credit-card verification technology, and there is "still little evidence of how exactly HP is leveraging this in [that] space," Garden said. □

NEW PRODUCTS

INFORMATION BUILDERS, INC. has announced WebFocus Suite, a set of Java Applets, including a report broker, that works with the company's WebFocus Application Server.

Officials at the New York company said the application server provides database reporting and publishing via the World Wide Web from more than 70 database types, including SAP AG's R/3. The suite adds managed reporting, an administrator-controlled environment for online analytical processing navigation and more report scheduling and distribution capabilities.

WebFocus Application Server starts at $7,200. Report Broker adds 30% to the price.

The Java-based developers workbench costs $2,500 for up to five developers.

Information Builders
(212) 736-4433
www.ibi.com

ACCRUE SOFTWARE, INC. has announced Accrue Insight 2.0, a network-based World Wide Web site analysis tool.

According to the Sunnyvale, Calif., company, the tool gives administrators visual representations of site activity and includes reports that can detail how visitors move through sites, what content is valuable to them and how effectively content is being delivered.

It can track a visitor's path through multiple sites and servers, trace entry and exit points of all users and give average durations of customer visits. The base product costs $10,000. But depending on configuration, it can cost from $60,000 to $100,000.

Accrue Software
(408)542-8900
www.accrue.com

Unisys middleware links databases to Web

By Carol Sliwa

UNISYS CORP. last week launched a middleware software package designed to make it easier for users to keep their electronic-commerce sites up to date with data on back-end servers.

Cool Internet Commerce Enabler (Cool ICE) integrates multiple, sometimes disparate, back-end database systems so that stored information can be accessed via the World Wide Web.

Scottsdale, Ariz.-based Antigua Group, Inc., which designs and embroiders sports clothing, wanted to make its static Web pages interactive by linking them to its back-end data. The company paid $15,000 to Vector Technology Corp., a Unisys reseller based in Scottsdale, to use the Cool ICE software to enable visitors to its Web page to get data from Antigua Group's AS/400 24 hours a day.

Using Unisys' Cool ICE middleware, Antigua Group was able to grow its business "without having to add people."
– Chris Devous, Antigua Group

That worked to significant advantage one Sunday when a sales representative in Florida needed to check the status of an order for a major Antigua customer. The sales rep logged on to the Web, found the order's ship date and informed the anxious customer when the shipment would arrive, said Chris Devous, director of systems development at Antigua Group.

Even on week days, the system is working to Antigua Group's benefit. Company officials have noted that the volume of order-status calls from sales reps and customers dropped from about 100 per day to "virtually nothing," Devous said.

"We were able to grow the business on existing staff without having to add people," he said.

Antigua Group built the Web front end and tied it to the middleware structure the company's systems integrator built.

EASY ACCESS

The Hillsborough (Fla.) County Sheriff's Office used the Unisys middleware to set up an intranet service that lets other criminal justice agencies access information such as arrest reports and arraignment lists. The intranet site helps direct inquiries to the proper database, since the sheriff's office has data stored on Unix and mainframe systems, said Cynthia Wall, applications development manager for the sheriff's office.

Agency professionals previously exchanged information by telephone, fax, mail and even hand-delivery of time-sensitive documents. Defense attorneys, for instance, often had to wait until they got to court to see documents. Now, that information is posted on the intranet at 2 a.m., allowing them to better prepare for court appearances, Wall said.

Wall noted a significant reduction in calls to the sheriff's office as a result of the intranet-based system.

"The major differentiator for [Blue Bell, Pa.-based] Unisys is going to be ease of use and integration with existing systems," said Phil Costa, an industry analyst at Giga Information Group in Cambridge, Mass.

He cited Microsoft Corp., NetDynamics, Inc. in Menlo Park, Calif., and Haht Software, Inc. in Raleigh, N.C., as the chief competitors among those who build applications that link to databases.

Pricing for Cool ICE software, which runs on Windows NT, starts at $10,000 per CPU. □

Advertisement

Managing Re-Systemization

How U S WEST Dex moved from a mainframe to a distributed environment with PATROL

U S WEST Dex, one of many U S WEST companies, sells Yellow Pages advertising, related mailing lists and other products that are derived from telephone directories. In all, they publish over 300 directories with over 42 million printed copies.

Handling all of this publishing and taking care of nearly half a million USA and international clients calls for complete distribution of data 24 hours a day. All of the company's critical applications must be available to thousands of users.

The original mainframe needed upgrading and the decision was made by U S WEST Dex management to move to a distributed environment. Over a period of many months, operational processes were decreased on the mainframe and increased on the distributed systems.

U S WEST Dex created a new group called the "System Managemeot Center" (SMC) to recommend products to help them ease and manage tbe transition. As interaction with the SMC progressed over a couple of months, one partner relationship between two vendors stood out, that of Hewlett-Packard and BMC Software.

"We found that the partner relationship between these two companies was able to satisfy a broad range of our needs. The joint presentation of their individual products tended to complement and even strengthen each other. We saw clear advantages to both vendors working with us as a single team rather than separately. We awarded them our contract jointly and plan to order more later this year," explains Project Manager Henry Vargas of U S WEST Dex.

"Our business-critical applications have been re-architected into the client/server model to help give us a competitive advantage. We use the Hewlett-Packard systems due to their mission-critical capabilities, high performance and the ability of Hewlett-Packard and BMC Software to put together a solution."

These products will provide U S WEST Dex with the ability to collect information from their new distributed computing environment and process it to report the status of individual elements within their IT environment. They will be able to graphically show the current status of all elements of their enterprise, including networks, systems, applications and databases, and manage them through one console. They should realize a seamless, easy transition of critical systems with reduced user downtime.

"We are pleased to be working with BMC Software on this project," said Business Development Manager Travis Muesing, of Hewlett-Packard. "We have worked with them before and have always felt that our products, services, support and education complement each other. Together, we can always provide our customers with a complete, timely and cost-effective solution to their integrated network and system management needs."

U S WEST Dex plans to incorporate more of the Hewlett-Packard and BMC Software products to provide additional support for IT operations, performance monitoring and IT administration.

"HP *is reselling PATROL® technology and products because of the tight integration BMC Software is delivering through the HP OpenView enterprise solutions. Together, HP OpenView and PATROL provide the highly desired complementary functionality that our customers need today in the areas of application and data management.*"

PATROL

Johnnie-Mike Irving, General Manager HP Professional Services Organization for the Americas

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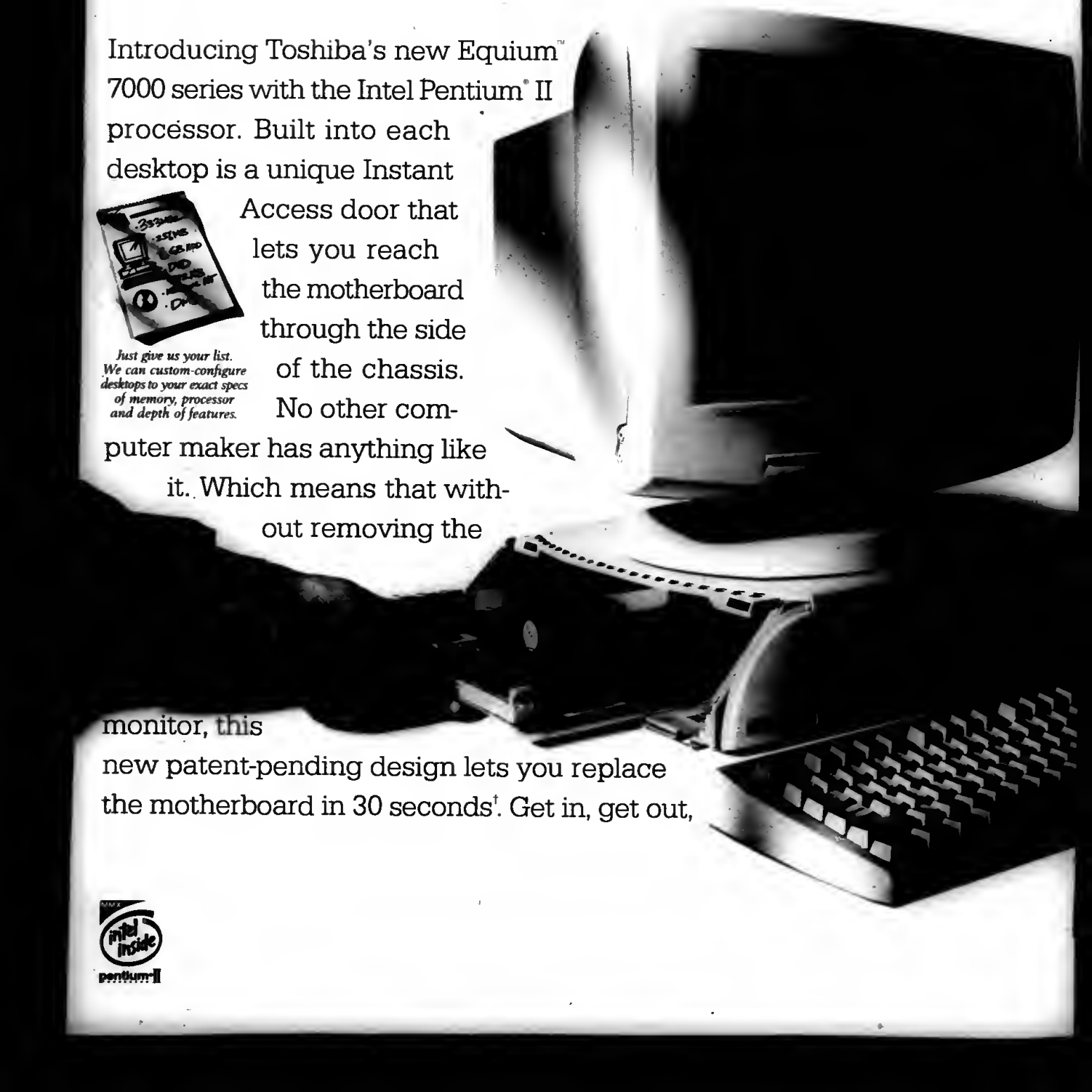

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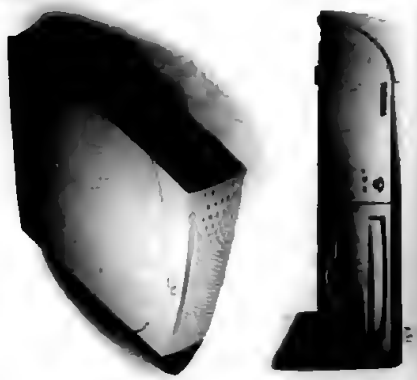

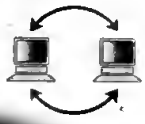

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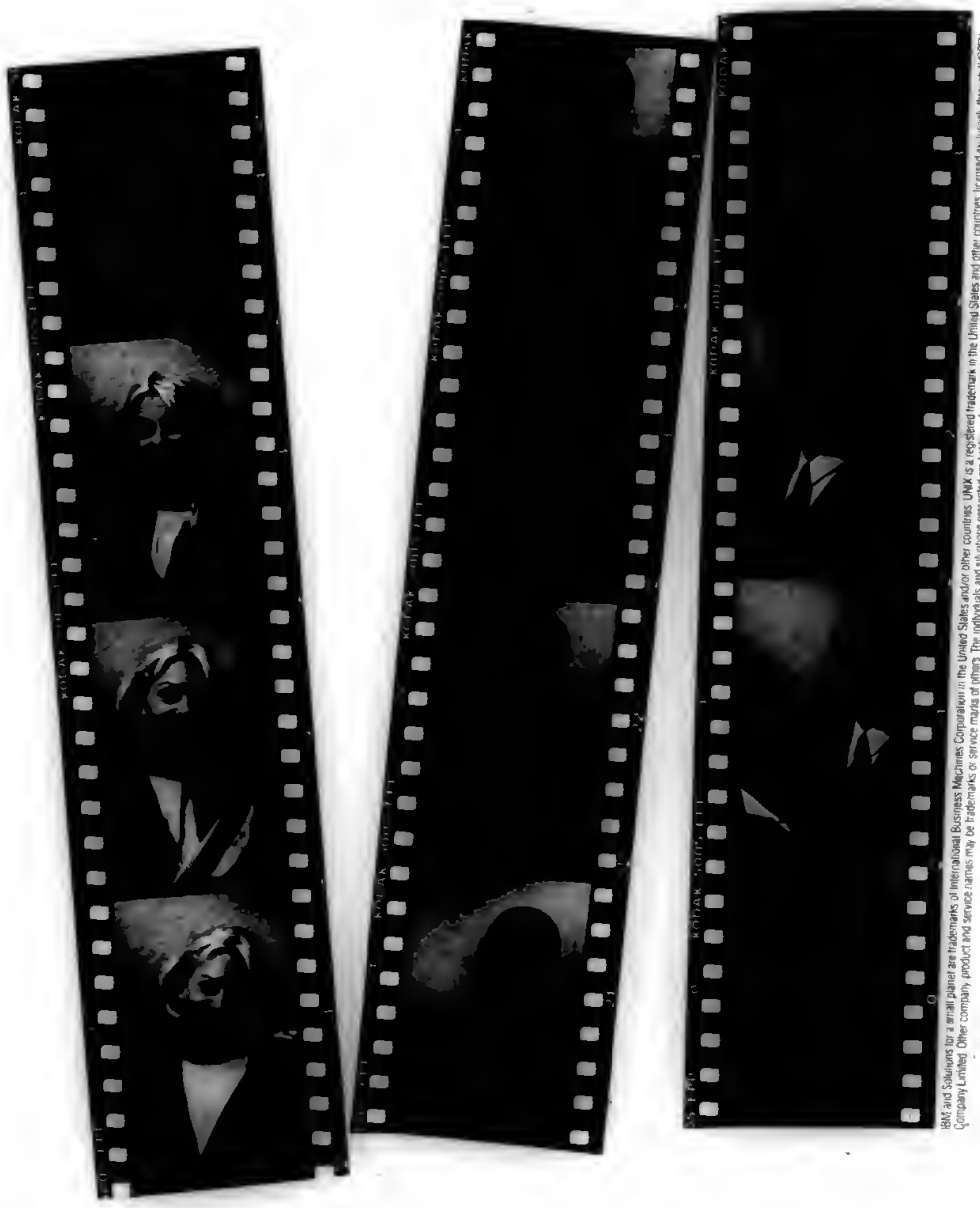

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The Enterprise Network

Briefs

HOME LANS COMING

Homes in the U.S. with two or more PCs

1997	14 million
2000	35 million*

* Projected
Source: Dataquest, San Jose, Calif.

Faster Ethernet

The Gigabit Ethernet Alliance said it has solved a problem that kept a Gigabit Ethernet standard from being completed this month as had originally been expected.

The group creating the standard had run into a problem transmitting Gigabit Ethernet traffic over certain lengths of fiber. It now expects to approve the standard in June.

Faster Token Ring

In what would be a boost for IBM shops, IEEE 802.5 Token Ring Working Group Chairman Bob Love said a standard for Token Ring products that run at 100M bit/sec. could be completed by year's end.

Current Token Ring products run at a maximum 16M bit/sec.

A demonstration of prototype, high-speed Token Ring products is set for the Networld/Interop '98 show in May in Las Vegas.

Managing public keys

HyperParx Corp. last week announced HyperParx Release 3.0, a software package that was designed to automate the administration of public-key infrastructures for virtual private networks (VPN).

The new graphical administration interface allows administrators to more easily manage access to corporate VPNs, which is a first for public-key networks, analysts said.

HyperParx is available now and is packaged with a security server and manuals on a CD-ROM.

A 250-user license costs $27,000.

Net speeds service

▸ *United's move to IP aids boarding, schedules*

By Bob Wallace

UNITED AIRLINES is upgrading its network to business class as part of an ambitious effort to improve customer service.

The Elk Grove Village, Ill.-based airline is in the middle of a three-year, $93 million project to construct an IP network, which in this case is frame relay, that will enable the airline to speed passenger check-in, among other things.

United will replace three low-speed leased-line networks with one open frame-relay network. Hundreds of dumb terminals that couldn't support IP-based applications will be swapped out for new Pentium-powered workstations.

A bonus, according to Bob Hasty, a project manager at United, is that "by consolidating networks, we're able to afford 10 times more bandwidth with frame relay for the same WAN cost."

Moving to IP and replacing the dumb terminals will let United do the following:

- Deploy FastAir, an IP application that cuts the check-in time per passenger by roughly 30 seconds by reducing the number of keystrokes the process requires. And that adds up to a faster boarding process and helps to ensure on-time departures. "A half a minute may not seem like much until you consider there may be 400 people on the plane," said Ken Cieszynski, senior staff engineer at United. "All future growth will be on the IP platform. We're also looking to deploy Web browser-based applications that aren't possible with dumb terminals."
- Support more graphics-based applications.
- Provide application access whereby any workstation can access any United application.
- Serve as the infrastructure for

United, page 50

• Testing voice recognition

Boston Globe: The power of your voice

By Matt Hamblen

THE VOICE-RECOGNITION system *The Boston Globe* has been using as a telephone directory for its 2,500 workers has been successful enough internally that the paper may open the system to outside callers.

For more than a year, *Globe* employees have been able to reach colleagues at the newspaper by dialing one telephone number and speaking the colleague's name. The voice-recognition system matches the name with a number in its database to connect the call.

The system, a partial replacement for a human-operated switchboard, is available around the clock, has drastically reduced the need for printed phone directories and is praised by users for its simplicity, according to Dave Pearson, director of information technology and telecommunications at the *Globe*.

"It means ease of use and less rigmarole to reach somebody," Pearson said.

Many companies are adopting similar systems, with good results, analysts said.

"The possibility for growth in this technology is enormous, since it could be used for airline and hotel reservations and everything where an outside caller is asking for information," said analyst Bill Hills at Aberdeen Group, Inc. in Boston.

The *Globe* system, called EmployeeConnector, is actually supplied as a service by telephony provider Parlance Corp. in Medford, Mass. It is stable and accurate enough that callers get connected to the correct party 92% of the time, Pearson said. "We'll never be perfect, but 8%

Voice, page 50

Looking for a connection

How well does the voice recognition in The Boston Globe's *EmployeeConnector telephone directory work? Here's what happened to a* Computerworld *reporter, a Midwesterner with no pronounced regional accent and no experience with the system, who tried to get through:*

FIRST CALL

EmployeeConnector: Name, please.

CW: Uh, Dave Pearson.

EmployeeConnector: Ringing Rob Richardson. To cancel, hit the star key.

CW: [Presses *].

EmployeeConnector: Name, please.

CW: [Speaking slowly] Dave Pearson.

Looking, page 50

INTERNET SECURITY

Major hacks raise hackles, spur defenders

By Laura DiDio

THE RECENT, highly publicized series of hackings nationwide has given rise to a new industry: consulting practices that field quick-response "white hat" hacking teams that attack customer sites to expose vulnerabilities.

The recent hacks include a simultaneous invasion of unclassified Department of Defense networks and several universities.

Price Waterhouse's Gary Loveland says his security business has increased 200%

A trio of Israeli teenagers recently hacked in to systems at Knesset, Israel's parliament, and also aided U.S. hackers in their penetration last month of NASA's networks.

To combat rogue activity, users — especially those doing business over the Internet and

Hackers, page 50

Hackers

CONTINUED FROM PAGE 49

engaging in electronic commerce — are employing "swat teams" from companies such as Price Waterhouse LLP, Coopers & Lybrand LLP, Ernst & Young LLP and IBM.

Price Waterhouse has seen a 200% increase in business the past 18 months, said Gary Loveland, a partner in Price Waterhouse's information systems risk management group.

STAFFING UP

Price Waterhouse's Tiger Team has quadrupled its staff from 20 security experts to 200 worldwide. Last week, IBM hired 10 security specialists to beef up its Global Security Analysis Lab in Yorktown Heights, N.Y.

The group has 100 Fortune 1,000 customers, up 30% from 18 months ago.

The Prudential Insurance Company of America in Roseland, N.J., used outside consultants to work over its information technology infrastructure to shore up weaknesses and create contingency plans.

"Hacking is a reality of doing business in the 21st century. Now security is as much a part of our routine IS life as daily backups," said Gary Lynch, vice president of information security at Prudential.

But most companies aren't prepared for an aggressive attack by skilled hackers, according to Mike Anderson, a former security investigator at the Internal Revenue Service.

"Businesses are astounded to find we can easily hack networks in thirty minutes or less," he said.

Ironically, security experts said, an initial sweep of a user's network often shows no lack of antivirus software or protective devices such as firewalls.

SIMPLE SAFEGUARDS

"The most glaring security weaknesses we find are usually the result of simple human error or not turning on security mechanisms in their operating systems," Loveland said.

For instance, a Tiger Team check of a Fortune 1,000 manufacturing concern found that the company's firewall and security policies were solid.

Initial attacks were repulsed, but further probes revealed a weakness.

The company recently had acquired a smaller company and attached that firm's network to the corporate backbone.

"The subsidiary had a live, undefended connection to the Internet, and no one realized it," Loveland said. "Our next attempt was successful."

Other companies let local offices handle security without oversight from the parent company. That leaves gaps vulnerable not only to outsiders, but also to internal attacks, Loveland said. □

SECURITY TIPS

- **Disable all system default accounts or change passwords shipped with systems**
- **Disable network services that contain valuable information, such as security**
- **Don't let users log on directly to a host system**
- **Passwords should contain letters and numbers**
- **Use encryption during network transmissions**
- **Limit the number of invalid log-in attempts a user is allowed**
- **Record security violations and review logs**
- **Install the latest security patches**
- **Restrict the use of .rhost and host.equiv files that let users have host access without a password**

United buys IP ticket

CONTINUED FROM PAGE 49

an intranet that will feature human resources data, text-based corporate information and a daily company news line, according to Cieszynski.

■ Also, by replacing the dumb terminals, United can go to a single electronic-mail network. That could be a boon for the airline.

VALUABLE INFO

"The airlines have accumulated extremely valuable customer information, notably from their frequent-flier [programs], over the past 15 years and also have ticket and credit-card data," said Mark Shields, vice president of the aviation practice at Mercer Management Consulting, Inc.'s Washington office.

"If these sources were fully linked, and customer service agents could readily access it, they could provide very tailored service to their frequent and most profitable customers," Shields said.

United is one of many airlines, including Southwest Airlines, Inc. and US Airways Group, Inc., that are moving toward an all-IP network [CW, March 23].

Those airlines typically have multiple networks that connect dumb terminals and run multiple, older protocols.

And those networks support a range of applications such as airline reservations and ticketing systems, general business applications and LAN-based office applications.

FAST TRACK

But United is accelerating the process by replacing all its dumb terminals, while some competitors are looking to extend the life of dumb terminals, primarily for cost reasons.

"Replacing dumb terminals and consolidating networks are very significant challenges that the airline industry has to cope with over the next few years," Shields said.

The airlines have to make the move because newer applications are written to IP, and dumb terminals won't support an IP network. □

Voice-recognition system

CONTINUED FROM PAGE 49

is such a low rate of error that people expect the system to work, and that speaks for itself," he said.

The *Globe* is considering whether to make a similar system available to customers who call for information, with story ideas or to order a subscription, Pearson said.

Jennifer Chao, a *Globe* IT specialist, said the system is "very helpful," especially when she is calling someone she doesn't usually call.

But Chao said she would prefer that EmployeeConnector repeat the party's phone extension with the name so she can bypass it the next time.

And the voice recognition isn't always accurate (see sidebar starting on page 49).

The Globe's David Pearson says EmployeeConnector is praised for its simplicity

At first, the system needed several adjustments to let callers use different pronunciations of her name, Chao said.

Two business reporters said they hadn't heard of the system, and a third said he didn't use it very often.

But reporters primarily place calls outside the organization, unlike business and operations personnel whose calls are primarily internal, Pearson said.

Less than 10% of public and internal calls are connected through EmployeeConnect in a given day, but that percentage is high enough to justify the $1,200 per month cost for the service, Pearson said.

Because the *Globe* has cut the printing of phone directories from four times per year to once per year, the savings on printing has helped pay for the service, he said.

UNIQUE VENDOR

Hills said Parlance is unusual among the many vendors in the voice-recognition field because it offers voice-recognition directories as a monthly service rather than selling customers hardware or software.

Parlance has about 20 customers nationally, including the Maine Employers' Mutual Insurance Co. in Portland, Maine, where the system is used by outside insurance customers calling a toll-free number to reach claims adjusters by their name.

"It's a little more customer-friendly than having them punch in a bunch of numbers," said John Chicken, facilities supervisor at the company. □

Looking for a connection

CONTINUED FROM PAGE 49

EmployeeConnector: Ringing Dave Pearson. To cancel, hit the star key.

SECOND CALL

EmployeeConnector: Name, please.

CW: Jennifer Chao [Reporter realizes he has a pen in his mouth; removes it].

EmployeeConnector: Ringing Bob Gentile. To cancel, hit the star key.

CW: [Presses *].

EmployeeConnector: Name, please.

CW: [Pauses to re-read name] Jeni . . . [Beep cuts him off].

EmployeeConnector: Ringing taxi. To cancel, hit the star key.

CW: [Hesitates].

Woman answers: Taxi. Where do you want to go?

CW: Actually, I want Jennifer Chao. Sorry, I'll call again.

[Second attempt works].

THIRD CALL

CW: Please, could I speak to Steven Bailey? [Reporter realizes EmployeeConnect is searching for someone named Please Couldeye].

EmployeeConnector: Ringing Peter Gosselin. To cancel, hit the star key.

CW: [Presses *].

EmployeeConnector: Name, please.

CW: [Loudly and slowly] STEVEN BAI-LEY.

EmployeeConnector: Ringing Ted Rundlin.

CW: [Hangs up].

— MATT HAMBLEN

See the forest, not trees

▸ *Visual tools make complex data meaningful to user*

By Patrick Dryden

TOO MUCH DATA, too little comprehension.

That's what information systems staffers face while attempting to maintain complex client/server environments.

To level the tower of babble, administrators are trying out better interfaces for their management and monitoring tools to get better presentations of that data.

"We need to switch from statistics and charts to 3-D depictions of the networked world and virtual views of business processes," said Michael Stollery, an advanced systems administrator at the service management center for Electronic Data Systems Corp. in Plano, Texas.

IS users tired of searching through tables or scanning icons are turning to reports that summarize relevant performance issues and graphical displays that explain interactions among systems, networks and applications.

Savant's Q Diagnostics Center graphically reveals database performance problems

The goal is to present information quickly and clearly to the technically illiterate as well as botshots raised on Nintendo and the World Wide Web.

"Vendors tended to just display all the details, but now they are realizing that they must turn those into meaningful information," said Paul Mason, an analyst at International Data Corp. in Framingham, Mass.

For example, Concord Communications, Inc. in Marlboro, Mass., and International Network Services, Inc. in Sunnyvale, Calif., have attracted users because of their ability to extract information and arrange it visually "so it makes sense to those bigh up in the organization," Mason said.

Icon-based tools "get messy" when they represent a large network, said Herb VanHook, an analyst at Meta Group, Inc. in Westport, Conn. That's why many vendors use the tree-like explorer interface from Windows, he said. It scales well, is familiar and is easily accessible from a browser.

The market needs more ways to present complex details visually, Mason said, "because humans are better at recognizing patterns, not analyzing data."

Some original attempts at interpreting data, Mason said, come from BGS Systems, Inc. in Waltham, Mass., which maps performance visually through colors, and Savant Corp. in Bethesda, Md., which models application activity to point out to bottlenecks.

"Savant's Q Diagnostics Center lets database administrators see problems at a glance by representing performance with colors and shapes like a funnel," said Mike Ault, a consultant at DMR Consulting Group, Inc. on assignment at BellSouth Business Systems.

At EDS, graphical interface options in the Unicenter TNG management suite from Computer Associates International, Inc haven't caught on yet, Stollery admitted. Operators prefer the standard two-dimensional interface of maps, icons and commands, be said.

"But we need the 3-D real-world display to help customers relate to what we're doing," Stollery said. That arcade-like view displays networks overlaying geographical maps, realistic servers inside company buildings and even components within systems.

Unicenter TNG's virtual view of business processes, which abstractly represents groups of related systems, network links and applications, should attract a new breed of operator, Stollery said.

"The Nintendo-esque interface is less painful than the command-line interface," Stollery said. "It must be pleasurable to use on a day-to-day basis."□

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Software

Databases • Development • Operating Systems

Briefs

Warehouses send answers in E-mail

By Craig Stedman

EXECUTIVES AT Nabisco, Inc. thought feeding data analysis tools to 2,500 business managers and salespeople would be too hard. So the $9 billion food maker took an easier-to-digest approach based on E-mail.

Instead of making users fire up analysis software, Nabisco takes in query requests and sends back sales reports via an electronic-mail server linked to its data warehouses.

DATA ANALYSIS

"We didn't want people frozen at their [PCs], waiting for reports to come back," said Joe Paciulli, a lead systems developer at Nabisco in East Hanover, N.J. "This way, users on the road can request a report and have it sitting in E-mail when they log back in."

Several other data warehousing managers said they also are using or testing technology that sends analytical data to end users through E-mail, faxes or pagers. Those can be very convenient vehicles for putting business alerts and reports in the hands of users, the managers said.

"It would allow us to push some type of message out to people saying there is something they ought to pay attention to," said Anita Herbert, manager of data management services at First Union Corp. in Charlotte, N.C.

Users also could regularly receive personalized reports via E-mail or fax, Herbert said.

REACH OUT AND TOUCH SOMEONE

How broadcasting software for data warehouses works:

1. End users or IT personnel set individual user preferences for data
2. Sales reports and other data warehouse queries are run centrally
3. Alerts or full reports are sent to users based on their profiles via E-mail, faxes or pagers
4. Messages can include spreadsheets or can be written automatically in plain-text format
5. Each report can be customized automatically for different users

First Union, the sixth-largest bank in the U.S., with assets of more than $150 billion, is testing data broadcasting software that was announced last week by analysis tools vendor MicroStrategy, Inc.

Four years ago, Nabisco had to write a custom application to provide E-mail links to the Information Advantage, Inc. data analysis server that builds the sales reports for its users.

The system formats more than 30,000 reports per month in Excel spreadsheets that are then attached to E-mail messages, Paciulli said.

Officials at Information Advantage said E-mail delivery capabilities have been built in to the Eden Prairie, Minn., company's DecisionSuite Server analysis engine since 1995. MicroStrategy's new DSS Broadcaster delivery software is being sold as a $50,000-and-up add-on to the Vienna, Va., company's flagship DSS Server software.

Answers in E-mail, page 54

Backups made easier

▸ *New Amdahl software shrinks app downtime*

Amdahl's enhancements to its TDMF software include:

- Improved memory and I/O management
- Data transfers over longer distances
- Ability to back up larger chunks of data, even when in use

By Jaikumar Vijayan

AMDAHL CORP. has enhanced its Transparent Data Migration Facility (TDMF) software with features that let users better manage data transfers and backups between mainframe storage subsystems.

Such transfers may occur when users move data from older disk arrays to newer, more powerful systems or when users off-load data to different disk arrays for year 2000 testing. Other examples include isolating certain data types to particular disk arrays or creating mirrored copies of crucial data in case of disaster.

Version 3.0 of the data migration technology, introduced by the Sunoyvale, Calif.-based company last year, helps users eliminate the application downtime that is associated with such large-scale data transfers. The latest version of the software does the following:

- Reduces memory resource bottlenecks and conflicts for storage I/O.
- Suspends data transfers in case there is a hardware or network failure.
- Automates management of data transfers.
- Makes it easier to back up large chunks of data such as the building blocks of a data warehouse.

"It has proved to be a really useful product for us," said Kevin Trapp, a storage analyst at General America, a St. Louis life insurance company.

Backups, page 54

• Interactive site design

Web tool eases data links

By Ross M. Greenberg

ALLAIRE CORP.'s Cold Fusion 3.1 makes complex database access through the World Wide Web as close to a no-brainer as I have seen.

Getting the corporate database up on the Web for display, entry and manipulation is easy with this product. Simple extensions to standard Hypertext Markup Language (HTML) tags provide database access to Cold Fusion's Application Server package, which is resident on the server. A few SQL queries then give an HTML page designer easy, secure and inexpensive read/write access.

Version 3.1, released at the end of last year, adds Solaris server hosting from Sunsoft, Inc., new tools and full integration with Allaire's Studio Web development tool.

Webmasters can turn today's static page designs into dynamic Web sites through interaction with corporate databases, electronic mail and local and remote Lightweight Directory Access Protocol (LDAP) support.

The product also provides sitewide indexed searching and support for Java, Common Gateway Interface and Component Object Model (COM) and Distributed Component Object Model (DCOM) objects.

Database links, page 54

PRODUCT REVIEW

▸ *Cold Fusion, Version 3.1*

OVERALL A GRADE

ALLAIRE CORP.
Cambridge, Mass.
(888) 939-2545
www.allaire.com

Price: Professional, $995; Workgroup, $495; Windows, $295

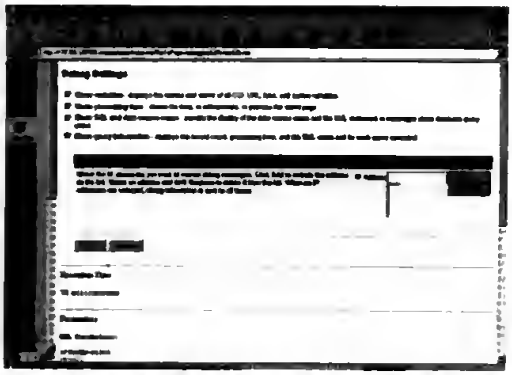
Pro: Powerful database extension through easy-to-use HTML extension tags

Con: Hard-to-learn back-end development of custom tags

Web tool eases database links

CONTINUED FROM PAGE 53

For testing purposes, I created in two days a simple point-of-purchase cash register with a full inventory query, adjustment and stock-level-check capabilities. The application would send LDAP E-mail when product supplies were low or out of stock.



Developers can administer elements of Cold Fusion through standard browsers

But it did take me a little while to understand Cold Fusion's custom tag integration. I used some recently learned dynamic HTML techniques to add flavor to the application. But more experienced programmers can add easy database access to sophisticated Javascript, Vbasic-script or ActiveX functions by using Cold Fusion Markup Language (CFML) to create custom tags. CFML is Cold Fusion's superset of standard HTML.

Developers conversant with CFML, which provides the rudiments of programming, can easily build complex aggregate applications based primarily on CFML. Those applications can be accessed through the server as well as an Application Programming Interface (API).

Features found in the custom tags are available as soon as they are deployed on the server. Those applications can include calls to COM- and DCOM-compatible constituent members through their own APIs while running on the server.

When users running standard browsers access CFML-enabled pages, Cold Fusion's Application Server interprets the page and its tag extensions before delivering — and possibly modifying or personalizing — the page to the user.

That may include Open Database Connectivity (ODBC)-based data retrieval and page integration through forms queries. The actual source to the CFML page need never be presented to the user. Keeping information such as passwords resident and hidden on the server boosts security.

Connecting to databases is easy, even if they reside on remote servers. Cold Fusion Professional can provide access, including query/retrieval and modification, to any ODBC-compliant relational database. But the Workgroup release provides access only to Borland International, Inc.'s Paradox and dBase and Microsoft Corp.'s Access and Foxpro databases.

The potential for powerful hybrid applications is limitless, but it is your corporate database we are talking about here. So along with the query and update power of Cold Fusion comes the ability to really screw things up if your programmers aren't careful. Backups and rigorous off-line testing are a must.

As a separately priced add-on, Allaire offers Studio. Based on its successful HomeSite HTML editing tool, Studio provides extra hooks into CFML through wizards and forms that make it easy to use complex new tags. Think of Studio as HomeSite Plus. Allaire should consider packaging them together.

Because adding custom tags is such an integral part of Cold Fusion, it should come as no shock that Studio can easily extend the tag-wizard ability for custom tags.

Adding parameters to the wizard proved more difficult than it should have, though. Building complicated new custom tags was a lot easier — though still not painless — with Studio.

In general, once you accept the concept of custom tags, Cold Fusion is easier to use and to implement applications on than Microsoft's Active Server Page. □

Greenberg is a reviewer and developer in New Kingston, N.Y. He can be reached at ross_msn@classic.msn.com

Answers sent in E-mail

CONTINUED FROM PAGE 53

Both companies said reports sent via E-mail can be embedded in spreadsheets or linked to their World Wide Web-based analysis clients for users who want to further analyze the data. Reporting software vendors such as Actuate Software Corp. in San Mateo, Calif., also support automatic E-mail or fax delivery of reports.

The paving materials unit at Koch Industries, Inc., a $35 billion conglomerate in Wichita, Kan., next month plans to start testing DSS Broadcaster as a potential means of greasing the skids for getting sales and financial data to users who don't have analysis tools now.

The broadcast capabilities "would give us kind of a candy-coated way to [deliver reports] without the users having to do anything but check E-mail," said Seth Samuels, a software developer at the Koch Materials unit. "A lot of people don't want to take the time to run reports. They just want to see the data."

A single report also could be tailored to users in different sales regions, Samuels said. But the impact on network bandwidth bears watching, he added. "That's definitely on the testing plan," he said. □

Backups

CONTINUED FROM PAGE 53

General Americs used the Amdahl technology during a fourth-quarter data migration from older IBM 3390 disk arrays to newer storage devices.

"TDMF allowed me to move the data even when users were actually using it," Trapp said. Since then, he has used the tool to move data around various disk subsystems, he said.

Vendors of data center storage products, such as IBM and EMC Corp., offer products similar to Amdahl's migration facility, but they are hardware-based.

Amdahl's software technology gives users cross-vendor support. That means users can transfer data from a storage device that belongs to one vendor to another vendor's storage device.

Such flexibility is crucial because corporate demand for storage is increasing, leaving storage administrators to juggle data among various disk subsystems, users and analysts said.

"Amdahl is the only vendor selling this kind of solution as shrink-wrapped software," said John Webster, an analyst at The Yankee Group in Boston. "Typically, vendors do this as a sort of service contract where they help users migrate data from one storage device to another." □

NEW PRODUCTS

REMEDY CORP. has announced Help Desk 3.0, help desk administration software that incorporates asset inventory and change scheduling.

According to the Mountain View, Calif., company, the software's new asset inventory feature lets help desk professionals track desktop asset information such as available memory, installed software and network configurations. It comes with three write licenses and unlimited user licenses.

Help Desk 3.0 costs $9,500.

Remedy
(650) 903-9001
www.remedy.com

SKUNK TECHNOLOGIES, INC. has announced ENTAO Extended Enterprise Suite 1.0, a 100% Java suite of communications applications that is platform-independent.

According to the Santa Monica, Calif., company, the suite comprises five application objects: ENTAO electronic mail, Text Chat, Visual Chat, Forums (threaded discussion groups) and Contact Manager. The write-once, read-anywhere software was designed for companies with multiple locations and multiple computing platforms.

It costs $20,000 per server with unlimited users.

Skunk Technologies
(888) 887-5865
www.skunktech.com

LUCENT TECHNOLOGIES, INC. has announced Multipoint Conferencing Unit Release 5.0, an multipoint videoconferencing system based on the H.320 standard.

The Murray Hill, N.J., company said the system incorporates the advanced capabilities of the emerging H.263 video standard by using an H.320 translator. The translator lets H.263 end points maintain their improved quality while communicating using the existing H.261 standard. It includes a panoramic view screen layout and improved in-conference system management.

Lucent Technologies
(908) 582-8500
www.Lucent.com

LEGATO SYSTEMS, INC. has announced Networker Business Suite Module 2.1 for Oracle8, an add-on to Legato's backup software that improves backup of Oracle8 databases from Oracle Corp.

The Palo Alto, Calif., company said this version of the module exploits new embedded manageability and reliability features in Oracle8, including block level incremental backups. It supports all versions of Oracle8 and higher and provides an upgrade path for Oracle customers using Legato Storage Manager, an entry-level backup product bundled with Oracle 8.0.4 and higher.

It costs $5,000 per Oracle data server running Unix and $1,000 per Oracle data server running Windows NT.

Legato Systems
(650) 812-6000
www.legato.com

Briefs

Remote configuration

RapLabs, Inc. in Provo, Utah, recently announced the release of RapDeploy, software that installs and configures operating systems and application software on many computers. It has tools to configure new PCs and servers, migrate existing systems and restore previous configurations.

Storage testing

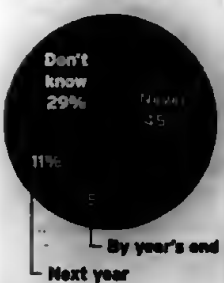
EMC Corp. in Hopkinton, Mass., last week announced the opening of an Enterprise Storage Discovery Center in Cork, Ireland. The facility is a test center where users can get hands-on experience before they buy expensive EMC storage systems and software.

Java by phone

Ericsson Telephone Co. last week said it will license Sun Microsystems, Inc.'s Personal Java language and Java Application Environment for use in its next-generation mobile phones and communications systems. The Swedish manufacturer of wireless telecommunications equipment plans to use Personal Java to enhance the functionality of its upcoming Wideband Code Division Multiple Access mobile phones and systems, which will let users transfer data and multimedia services on their phones.

NC bandwagon slows

When will you purchase network computers?



Base: IS managers at 1,600 U.S. companies

Source: International Data Corp., Framingham, Mass.

Users win as PC price war escalates

▸ *Competition lets users bargain for deals*

By April Jacobs

ONGOING PC price reductions aren't likely to spur corporate users to pitch their brand-name suppliers. But they do make it easier to buy beefier hardware for upgrades to Windows 95, 98 or NT, corporate users said.

Tassey Bruno, director of advanced technology at the National Association of Securities Dealers data center in Trumbull, Conn., said she won't switch PC vendors, from Dell Computer Corp. to Hewlett-Packard Co., for example, because of price wars. But the information systems department will demand lower prices if they see a competitor offering them.

"A competitor with a lower price would be a leverage point, and we would put pressure on them to come down on their price," said Bruno, who supports users of Dell PCs. Bruno said large user shops can develop valuable relationships with a vendor based on carefully negotiated service agreements and standard configurations. These arrangements carry value, just as PC discounts do, she said.

WHAT ARE YOU GETTING FOR THE MONEY?

Prices remain stable, but standard corporate PCs continue to gain power

VENDOR/YEAR	PRICE	RAM	CHIP SPEED	HARD DRIVE
Compaq				
1998	$3,189	64M bytes	333 MHz	4.3G-byte
1997	$3,270	32M bytes	200 MHz	2G-byte
1996	$3,425	16M bytes	166 MHz	1.08G-byte
Dell				
1998	$3,238	64M bytes	333 MHz	4G-byte
1997	$2,838	32M bytes	200 MHz	2G-byte
1996	$3,261	32M bytes	133 MHz	2G-byte
IBM				
1998	$2,695	32M bytes	300 MHz	4.2G-byte
1997	$2,000	32M bytes	166 MHz	2.5G-byte
1996	$2,303	16M bytes	133 MHz	1.2G-byte

Analysts said Intel Corp.'s rate of chip releases is one factor driving down PC prices because excess supply at the end of one processor's life cycle means Intel will cut costs to reduce inventory.

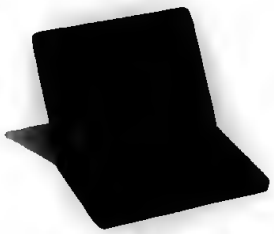
And competition among PC vendors has moved from price into the supply chain.

For example, Dell's success with online sales has pushed others, notably Compaq Computer Corp., to whip together build-to-order manufacturing

PC price wars, page 56

How much will laptop users pay?

By Kim Girard



HP's slick-looking OmniBook Sojourn may appeal to the highest of the high end

SURE IT LOOKS slick, but are corporations willing to pay about $6,000 for a 3-pound ultraportable notebook computer?

Palo Alto, Calif.-based Hewlett-Packard Co. sure thinks so. It has packed some high-end technology into its skinny new OmniBook Sojourn notebook.

But the company may fall flat on sales because competing products, though not as thin or as light, offer bigger hard drives and comparable features at considerably lower prices.

At three-quarters of an inch thick, the OmniBook Sojourn is the slimmest and most expensive machine in the ultraportables category. It will compete with, among others, IBM's ThinkPad 560; Toshiba America Information Systems, Inc.'s Portege line; and Sony Corp.'s VAIO. Mitsubishi Corp. and HP co-developed the thin notebook and are marketing their similar models under different names; Mitsubishi is calling its model the Pedion.

"No one is going to buy this thing," other than a CEO or a high-end executive who wants a slick machine with limited computing power for checking electronic mail or reviewing a document, said Phillip Redman, an analyst at The Yankee Group, a Boston-based consultancy.

HP is offering the machine to compete in the high end of the

How much?, page 56

Open systems storage meets high availability

▸ *NT and Unix servers get mainframe features*

By Nancy Dillon

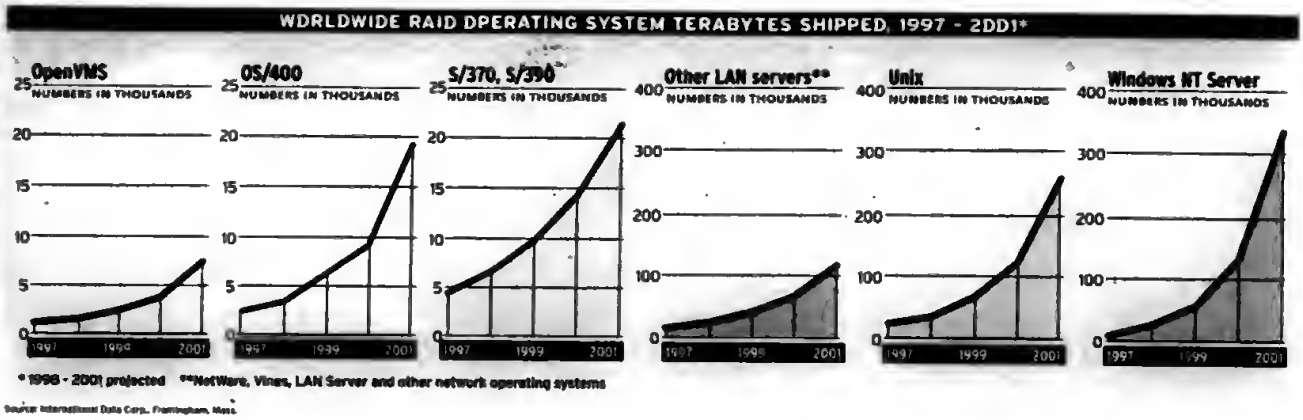
HIGH AVAILABILITY IS no longer a buzzword just for mainframe storage managers. At companies with burgeoning Windows NT and Unix servers, it is also becoming a motto for users in charge of open systems storage.

Three open systems storage products introduced in the past week were designed with high availability in mind: the NetApp F6300 from Santa Clara, Calif.-based Network Appliance, Inc.; the 9153 OpenStorage Disk Subsystem from Louisville, Colo.-based Storage Technology Corp.; and the SuperFlex 5500 from Storage Dimensions, Inc. in Milpitas, Calif.

The systems cost more than competing products designed to achieve the lowest cost-per-megabyte, but analysts said they will have buyers anyway.

"A lot of people think open systems users, especially NT users, just want low prices," said Tom Lahive, an analyst at Dataquest in Westboro, Mass. "Right now, that's true for 90% of the market. But in a few years, only 70% will want cheap, and the rest will demand enterprise quality storage that eases man-

Open storage, page 56



Open storage boosted

CONTINUED FROM PAGE 55

agement."

Network Appliance's F6300 offers high-level hardware redundancy to users looking for network-attachable RAID storage.

The 1.4T-byte F6300 system comprises two F630 storage servers — each with its own disk array — and clustering software. F6300 data servers can support Windows, Unix and World Wide Web files.

In a clustered configuration, either server can take over the IP addresses and file systems of its partner in the event of a failure. Pricing for the F6300 starts at $200,000.

John Nixon, vice president of engineering at Web hosting company MindSpring Enterprises, Inc. in Atlanta, said the F6300's price doesn't faze him.

His company already uses unclustered NetApp storage servers and is always looking for "that last .001% of availability," he said.

"High availability is our business, so we could easily justify the costs of redundant clusters of hardware," Nixon said.

Tom Shipley, an analyst at Gartner Group, Inc. in Stamford, Conn., said when the number of users and applications on NT servers is small, the extra expense of fail-over features probably isn't worth it.

But as the importance and size of open systems servers grow, hardware designed for high availability becomes essential, he said.

On the server-attached side, the 9153 OpenStorage Disk Subsystem from StorageTek was announced last week.

It can connect with Windows NT and Unix servers and incorporates redundant control modules, power supplies and fans to cut down on possible single points of failure. It scales from 10 to 40 drives and between 45G and 720G bytes. Each controller pair can attach to two servers. Pricing wasn't available.

BALANCING ACT

Charles Johnson, a systems analyst at Custard Insurance Adjusters, Inc. in Norcross, Ga., said his 25G bytes of Windows NT data is growing steadily, but he plans to straddle the line between the price-conscious majority and users more concerned with features for the next few years.

"We do have a RAID array with dual controllers on one of our NT servers," he said.

"But with our other four, we generally go for the most bang for the buck," Johnson said.

The SuperFlex 5500 announced last week by Storage Dimensions also incorporates dual active RAID controllers. Pricing starts at $20,000 for a 25G-byte array. □

How much will laptop users pay?

CONTINUED FROM PAGE 55

market and as part of the company's larger effort to revive its notebook line, recapture business users, and offer service and support to its customers, he added.

TOO STEEP?

But the price is daunting when you consider that a heavier notebook with a 233-MHz processor and 4G-byte hard drive costs about $4,000.

For example, for $3,699, users could pick up either a 1.5-in. thick Sony VAIO PCG-729C that weighs about 5.7 pounds, has a CD-ROM drive, a 266-MHz Pentium chip and 4G-byte hard drive; or a 3.8-pound Toshiba Portege 320 CT that has a 266-MHz Pentium MMX chip and a 3.8G-byte hard drive.

The OmniBook Sojourn features a 233-MHz Pentium processor with MMX technology, a 2.1G-byte hard drive and a 12.1-in. display — about the same size as others in its category. Available next month at an estimated price of $5,800, the OmniBook Sojourn has an ultraslim docking station that comes with a standard CD-ROM drive, floppy drive and spare battery.

"It's cool," said Jerry Winchell, controller for information technology at Progressive Insurance Co. in Mayfield Village, Ohio. "But the pricing's a real shock." Progressive uses HP notebooks and has bought a handful of 4-pound ThinkPad 560s. Priced at $3,600, they come equipped with a 233-MHz Pentium and 4G-byte hard drive and are the company's smallest high-end machine.

HP, this spring, also is expected to roll out a OmniBook 4100 series that will compete with the ThinkPad 560.

Those notebooks will be equipped with Intel's new Pentium II processor, to be announced Thursday.

Winchell noted that at a cost less than that of a Sojourn — about $4,800 with a 233-MHz processor — the company also could buy executives a Digital HiNote Ultra 2000 that weighs less than 4 pounds, is 1.5-in. thick and has a panoramic 14-in. screen. □

PC price wars = deals

CONTINUED FROM PAGE 55

models and create their own online presence while cutting prices and offering free monitors with some models. Compaq cited excess inventory in its resellers' channels in a recent warning about disappointing earnings [CW, March 16].

"Corporate buyers will continue to see lower prices as the PC [makers] compete with each other to keep inventory levels down and hone their distribution models to get products out the door," said John Dunkle, president of Workgroup Strategic Services, Inc., a consultancy in Portsmouth, N.H.

A sampling of prices from Dell, Compaq and IBM over the past two years shows that users can expect to get a lot more for about the same money (see chart, page 55).

And IBM and Dell, for example, have lowered prices on high-end corporate PCs. Pentium II-based machines are priced at well under $2,000 — about one-third less than they were last fall.

NEGOTIATING TOOL

Another user at a large company said he also uses price as a negotiating tool when buying hundreds of PCs.

Wayne Hastings, assistant to the vice president of power generation at Detroit Edison Corp. in Detroit, said his company follows price closely, but only between two standard vendors: Compaq and Dell.

Hastings said he compares one with the other to get the most technology for a base price of about $3,000.

Hastings said taking advantage of falling prices at the high end of a vendor's PC product line can extend the life of the hardware.

PASS THEM ALONG

Spending more than average per PC to get more performance means advanced users can take advantage of leading-edge technology before giving the models to less-demanding users, Hastings said. He said he shifts his best machines every two years to users of less-demanding applications.

Other users said lower prices also can ease operating system upgrade costs. Users said that is because Windows 95 generally requires 32M bytes of memory to perform well, along with a 133-MHz Pentium processor. And depending on users' applications, a business PC should have between 1G and 2G bytes for its hard-drive storage.

John Williams, IS manager at Priority Pharmacy, Inc. in San Diego, said lower prices have eased the cost of upgrades to Windows 95. He said it would have been more expensive two years ago to meet Windows 95 requirements with a PC purchased then.

Analysts said vendor competition will continue to push prices downward. □

Remote users are more expensive

By April Jacobs

DESPITE NEW TOOLS that make it easier to support mobile workers, it still costs a lot more to support users who work with a laptop rather than a desktop machine.

The cost of buying and supporting an average desktop running Windows 95 without a network interface card will run about $7,800 per year, but a mobile computer will cost more than $12,000 per year, according to Stamford, Conn.-based Gartner Group, Inc.

But for companies whose road warriors need to conduct business, the laptop becomes an essential tool regardless of cost.

"Let's face it, the laptop now in the hands of a professional is their life because it's their tool kit," said Brian Brumit, a director at Coopers & Lybrand LLP, a consultancy in Hartford, Conn. "The ideal mobile client has to be equivalent in performance to a desktop, but they require much more thoughtful configuration, and their complexity makes them more expensive in a lot of ways."

He said the issues most likely to affect users are wear and tear on laptop;, hardware and software compatibility problems; and remote access to essential services when they are at a client site interacting with that client's systems.

But analysts predict that desktop systems management tools eventually will be able reduce the cost of maintaining mobile computers.

For example, newer machines that support the Distributed Management Interface 2.0 (DMI) should be easier to handle. DMI allows the machine to be part of the desktop tracking cycle, giving network managers tools to check the configuration of any system on the network to make sure it has the right options installed.

But it doesn't allow a machine to be switched on from a remote location to be serviced or upgraded, said Ken Dulaney, an analyst at Gartner Group.

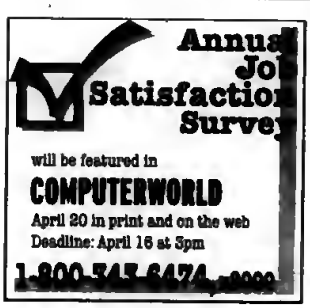
That capability would make life a lot easier, because it would allow laptops to be serviced like desktops. But because laptops would have to be connected to the network at the time, it assumes too much, he said.

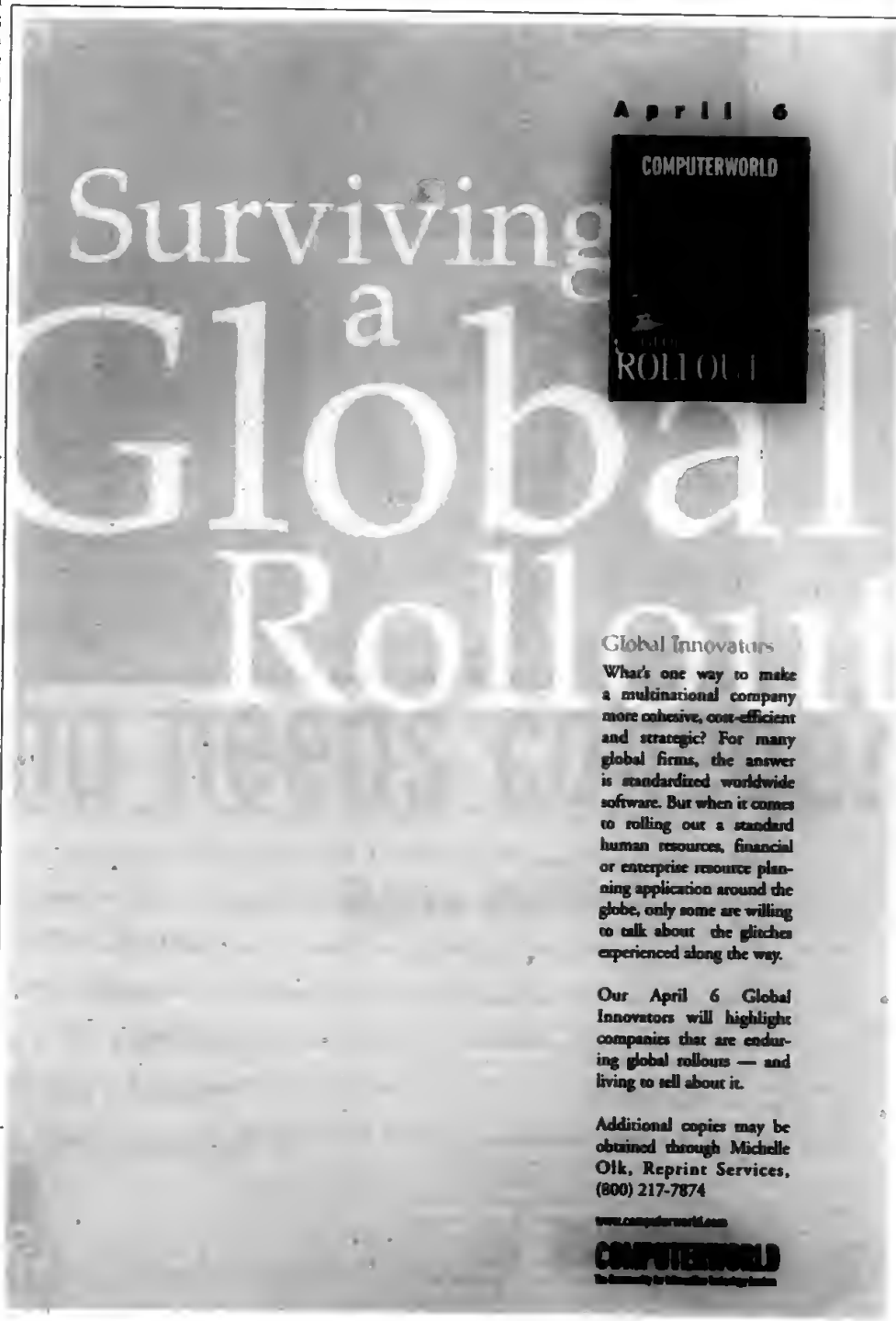
Remote upgrades and updates now are usually handled by end users themselves or are scheduled for when they are in the office, making updates sporadic at best.

"Any time you go unplugged, things become more difficult," said Tim Everhart, senior vice president at NationsBank Corp. in Charlotte, N.C.

For example, Everhart said, applications that are World Wide Web-based are a problem for users who work unplugged. Telecommuters have to go online occasionally to update or retrieve information, a process that can be complex. "Remote database and synchronization issues can become very expensive," he said. "And we've been evaluating those issues and trying to solve as many of them as we can."

Analysts said users can take some measures to trim costs That may include implementing a Web-based support service, which helps users diagnose problems. □




April 6
COMPUTERWORLD
ROLLOUT
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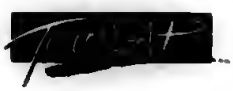


SAP

A Better Return On Information.℠

The Jargon Judge rules [illegible] when you say "legacy system." Page 61

Managing

DANIEL VASCONCELLOS

Dear Mr. Gates:

Thank you for your interest in the position of IS specialist at Acme, Inc. Although your skills and experience are impressive, I'm afraid your lack of a B.S. degree disqualifies you from consideration as a candidate . . .

So, who needs college?

If you have IS jobs to fill, broaden your horizons. There are plenty of qualified candidates without college degrees By Kathleen Melymuka

Poor Bill!

Judging from the technology ads in a recent edition of *The Boston Sunday Globe*, he and a bunch of his peers (including Michael Dell, Larry Ellison and Steve Jobs) are barely employable. Unix systems administrator at CVS Pharmacy? Bill won't make the cut. Database administrator at Lincoln Laboratory? Negative. AS/400 programmer at Cardinal Health? Sorry. No degree; no dice.

Studies show that the great majority of U.S. companies require college degrees for most information technology jobs. For example, in a recent survey by the Information Technology Association of America and Virginia Polytechnic and State University, 83% of respondents say they require four-year degrees for all or most programming positions. Not surprisingly, 85% said they were having a hard time filling those positions.

Nonetheless, analysts say at least six of the top 10 job titles identified by *Computerworld*'s Jobs Forecast '98 [Dec. 29, 1997] as most in demand can be performed successfully by nondegreed people. Those include PC technical support specialist, network administrator, webmaster, programmer/analyst, LAN manager and Internet/intranet manager. Of the technical skills most in demand (help desk, Cobol, Java, Hypertext Markup Language, routing, C++, C,

Who needs college, page 60

So, who needs college?

CONTINUED FROM PAGE 59

Unix, Internet development tools, TCP/IP, Windows NT and NetWare), virtually all can be performed by someone without a degree.

Maybe it's time corporations in the throes of the worst IT skills shortage in history loosened their educational requirements and started hiring for ability. Companies that have done so have discovered that the talent pool is much deeper than it looks.

Just ask Jim Crumb, chief operating officer at World Media Co., an Omaha World Wide Web developer. One of his most valued employees is a nondegreed senior programmer/analyst who has been with him for seven years. "I've moved around and brought him into three different companies with me," Crumb says. Although the employee had no formal training in C++ or Java, he now does high-level programming in both. "And with his work ethic and commitment to quality, he has consistently created high-quality products that have made our customers very happy," Crumb says.

NEW RULES REQUIRED

U.S. companies are playing a new game by old rules, and the old rules call for a college degree. But Al Walker doesn't think it's necessary. Though you may need a degree for systems analysis, you don't need one for Java, C++ and Web-related jobs, says Walker, a senior partner at Towers Perrin, a Chicago consultancy that specializes in human resources issues. "If you have brains and training, you can pick up [those skills]."

Diane Tunick, a senior research analyst at Gartner Group, Inc. in Stamford, Conn., goes further: "I would say that, with the exception of some planning, architecture, financial management and analysis — the business management skills required in an IS organization — the answer [to whether a degree is needed] would probably be no."

Then why are companies demanding college degrees? Proponents say a degree brings with it a presumption of certain skills or at least certain habits of mind, a proven ability to learn, handle responsibility and perform complex tasks. There's also a presumption that people with degrees will be better at soft skills such as communication and teamwork.

Others argue that degree holders don't necessarily have those qualities and nondegreed people don't necessarily lack them. "Some say students straight from high school don't have communications skills," Tunick says, "but frankly, I've seen MBAs without those skills."

Tunick says a blind reliance on degrees may just be a way for human resources departments to avoid confronting the difficult problem of determining the qualities and skills various jobs actually require. Others agree. "They're being very conservative because they don't understand what you need in terms of skills," says Bert Concklin, president of the Professional Services Council, a technology trade association in Vienna, Va.

"A lot of it is just mindset," Walker says. "People are stubborn."

READY, AIM, SHOOT SELF IN FOOT

Stubbornness on this issue can get companies in trouble. Tunick tells of a university that decided it would require degrees not only for new hires, but also for anyone promoted internally, which cut out 30% of the IS organization.

In another organization, the only nondegreed IS person had grown over five years into such a respected user guru that the company was debating whether he was qualified to do the job he was doing. "They were facing the flaws in their own hiring practices," Tunick says.

Technical companies tend to be looser about degree requirements because they're rebels by nature, says David Foote, managing partner at Cromwell Foote Partners LLC, an IT management consulting firm in Stamford, Conn. "Anybody can step up and get it done," he says. "That's why they got where they are. But [non-IT] companies have dress codes. [Human resources] people have way too much power, which worked well in the '50s, '60s and '70s but doesn't work now."

> "Some say students straight from high school don't have communications skills, but frankly, I've seen MBAs without those skills."
> – Diane Tunick, Gartner Group

DAMN THE DEGREE; FULL SPEED AHEAD

What works is hiring for talent, and contract/consulting firms have been doing that for years. "I look for skills and experience rather than education, because my clients rely on me to make sure people are technically competent," says Shelly Simoneau, senior account manager at Kenda Systems, Inc. in New York.

Ironically, non-IT companies don't seem to have the same faith in their own internal recruiters. They'll pay a premium to hire a nondegreed contractor, but if he applied for a permanent job that required those same skills, he wouldn't make the first cut. "It happens all the time," Simoneau says.

Some mainstream companies are striking a practical balance on this issue. "We certainly value education," says Carol Devine, director of compensation and benefits at Playboy Enterprises, Inc. in Chicago, "but we try to look at experience and how people have performed on a job. We try to look at the skill sets that people have. In Internet, for example, new technologies are coming out every week. A lot of colleges don't even teach those."

Caterpillar, Inc. in Peoria, Ill., has an internal program to train business employees who want to move into IS careers. Degrees are preferred, says Jim Miller, manager of administrative services for IS at Caterpillar, but "experience tells us we don't want to pass up a real gem just because a person doesn't have a degree."

Abandoning the degree requirement leaves a void in companies' screening processes that many aren't ready to fill with sophisticated industry knowledge. But industry credentials can help by certifying a candidate's skills in some technology areas.

Certifications such as Certified Novell Engineer and Microsoft Corp.'s Certified Systems Engineer are popping up more often in advertisements. "Sometimes those certifications can be in lieu of a traditional university degree," says Susan Yule, vice president at Eliassen Group, Inc., an IT consulting and staffing firm in Wakefield, Mass.

The idea of hiring nondegreed people isn't to create a worker drone subclass but to fill positions with ambitious, motivated people who can grow. And given the opportunity, they will.

Complete Business Solutions, Inc. (CBSI), an IT consulting and contracting firm in Farmington Hills, Mich., hired 20 high school graduates three years ago for a special IT training program and started them out with basic PC maintenance.

Today, 15 are still with the company, having moved on to a variety of work from internal LAN administration to Visual Basic programming for clients. Two have been recruited by Chrysler Corp. and the city of Detroit. "I'm not saying every high school graduate can turn into a computer wizard," says Gail Lutey, director of investor relations at CBSI, "but if they have the basic aptitude, some of them can do it."

Analysts see no end to the skills crunch. Sooner or later, companies are going to be forced to look to nondegreed candidates for many of the IS skills they need. "Companies are going through incredible cultural shifts because they have to, not because they want to," Foote says. "And so are the rules about who you hire."

It's time corporations got real about the skills gap and the people who can fill it. "People come to me saying they can't find the skills they need," Walker says. "But I say, 'Where have you been looking?'" □

Melymuka is Computerworld's senior editor, management.

No degree required

No one is claiming that nondegreed people can do every job in IS, but consultants, contractors, IS managers and trainers say the following areas are prime for nondegreed candidates:

- Data entry/processing
- Help desk
- Internet/intranet (design, development, administration)
- Network support/administration
- Programming (assembler, Cobol, Java, C++, Smalltalk)
- Quality assurance engineers
- Software (design, development, maintenance)
- Technical documentation
- Year 2000 impact assessment (software inventory, coding, testing)
- Web design, construction and maintenance

COMPUTERWORLD

This week on our Web site (www.computerworld.com), meet four IS professionals who are thriving without college degrees.

RESOURCES: FOR IS MANAGERS

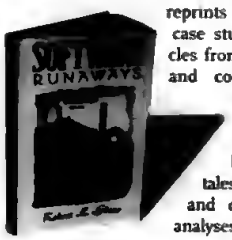
BOOKSHELF

Software Runaways: Lessons Learned from Massive Software Project Failures

By Robert L. Glass
PTR Prentice Hall, Upper Saddle River, N.J.; 288 pages, $28 (paperback)

Welcome to the junkyard. Robert L. Glass, who has worked with and written about computers since the mid-1950s, has conveniently brought together in one steaming pile of wreckage some of the biggest project failures in software development history. Among them: Denver International Airport's baggage claim system; Bank of America's Masternet trust business accounting system; the Confirm reservation system that was supposed to connect Hilton Hotels Corp., Marriott International, Inc. and Budget Rent A Car Corp.; the system that drove FoxMeyer Drug Co. into bankruptcy; the New Jersey Division of Motor Vehicles' botched car registration system. And of course, the Internal Revenue Service.

Only one of those profiles in catastrophe was written for the book; the rest are reprints of academic case studies and articles from the business and computer press (including *Computerworld*). Glass brackets those tales with two brief and clearly written analyses. I particularly liked his summary of the lessons to be learned from those defunct projects, drawn from both his own analysis and two KPMG Peat Marwick LLP studies of runaway projects. They include some surprising findings. The use of packaged software didn't help reduce runaway projects, and technical problems — the inability of a technology to scale up, achieve the response times or meet the functional performance times demanded by the requirements — derail projects almost as frequently as project management errors. Glass also provides a short summary of remedies for runaway projects.



I would have liked to have seen more original analysis and research from Glass and some case studies of his own, particularly of project failures that haven't already been caught in public. This is his fifth collection of computing project failure stories (although the first since 1987), and Glass knows as much about software failure as anyone could possibly bear without throwing themselves off a building in a fit of depression. Still, it is a handy collection to have, is a quick and easy read and will be thought provoking for anyone involved in an ambitious systems development project, be they hard-core techies, project managers, line executives or consultants.

— Allan E. Alter

CONFERENCES

The Quality Assurance Institute's (QAI) annual International IT Quality Conference; *April 13-17 at The Clarion Plaza Hotel, Orlando, Fla.*

A major gathering for quality assurance professionals and anyone in information systems who needs to learn how to identify, prevent and manage information technology quality problems. Fee: $1,295 to $1,395. Contact: QAI, (407) 363-1111 or on the World Wide Web at *www.qaiusa.com.*

The Support Services Conference & Expo; *April 19-24 at the Washington Convention Center*

Issues in five tracks will be covered: Developing Support Teams; Customer Loyalty and the Call Center; Managing IT, Technical and Software Support Organizations; Trends Toward the Future; and Call Center and IT Technology. Fee: $995 to $1,095. Contact: Support Services Conference & Expo, (800) 801-1354, via E-mail at supportservices@zdcf.com or on the Web at *www.ssce.com.*

Human Resources: The Key Ingredient to IT Success; *April 27-28 at The Ritz Carlton in Cleveland*

No vendors or consultants. Just presentations by information systems and human resource managers on their initiatives for beating the IT skills shortage. Fee: $1,150. Contact: The Information Management Forum at (770) 455-0070, via E-mail at timf@mindspring.com or on the Web at *www.infomgmtforum.com.*

Network/Interop '98 Las Vegas; *May 4-8 at the Las Vegas Convention Center and the Las Vegas Hilton*

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JARGON JUDGE

BY ANNE MCCRORY

"Legacy system"

What is a legacy system?
a.) A computer system that predates you.
b.) A mainframe-based system, written in Cobol, that's more than 5 years old.
c.) A mini or mainframe system that predates client/server.
d.) Green-screen Unix applications.
e.) Any hardware and software that was there before the latest stuff was brought in to replace it.
f.) Any system that's obsolete.
g.) All of the above.

And the answer is ... g, if my poll of *Computerworld* staff is to be believed. Where once there may have been agreement on what a legacy system was ("something inherited from your predecessor" is what I was once told, and *Webster's* agrees), it's clearly a fuzzy term now. No two definitions are quite the same.

And therein lies the problem. If those of us who work with technology offer disparate definitions for the same term, how can we ever expect anyone else to know what we mean?

Some of this fogginess is the inevitable result of an evolving industry. Once, a legacy system was a mainframe, because that's all there was to replace. Now it can be anything that isn't brand new. That leaves quite a bit of wiggle room.

Yet being old, even in the computer world, hardly renders technology unusable, and here's where lots of confusion comes in. It's true that like anything that is last year's model — the sports car, the Chanel evening gown, the 166-MHz Pentium — legacy systems usually aren't in vogue. But what is your CEO really fussing about when he lambastes your system ("What do you *mean* it won't let us use all those Java applets I read about on the plane?")? That it's ill-equipped to do the work you need it to (and therefore obsolete), or just unable to incorporate the latest bells and buzzwords? Is the dress ripped, or is it simply that you've already worn it?

Some people, of course, do mean "obsolete" when they say "legacy." To them, a legacy system is a ball and chain: They can't outrun it, and it's always there, slowing them down.

Yet a different company could be running its business, and running it well, on that same older system. In those cases, older doesn't mean inefficient, plodding or bad. So it doesn't really mean legacy.

Or does it?

See how imprecise, how clouded by nuance, "legacy" has become?

Next time you hear yourself saying it, just make sure your audience knows what you mean. Perhaps "information in the older computer" would be better understood, or "those clunky terminals back in accounting." Or, as one of my correspondents offered, "like your grandmother's Oldsmobile." Now there's an expression we all agree on. Right?

I was at a high-level IT seminar recently, listening to a consultant expound the need to align IT with business processes.

KATHLEEN MELYMUKA

ALIGN IT WITH THE BUSINESS PROCESSES? PHOOEY!

What else is new, I thought. But she was all revved up, repeating it several times, like a mantra. "Align IT with the business processes."

All the "students" in this audience were nodding along, except for Elliot Bramnick, a project manager who leaned over to me conspiratorially and whispered, "Ya know, sometimes I think you have to align the business processes with IT."

I'll be darned, thought I, the emperor has no clothes on after all!

The project manager was right, of course. Technology may present an opportunity so powerful you'd be nuts not to take advantage. If that means changing your business processes, so what?

'BULL' AND 'HOOEY'?

"There are some aspects of business where the alignment mantra is bull," says Bill Rosser, vice president and research director for management of technology at Gartner Group in Stamford, Conn.

For example, although the folks at Idexx Laboratories, Inc. in Westbrook, Maine, were implementing SAP, they didn't want to change their business processes. "We thought we were unique and there was no way SAP's standard processes would apply to us," says Amy Vorbeck, systems manager. So Idexx spent the better part of a year and a substantial amount of money changing the SAP code to align with its processes. Then it went live.

Uh-oh. "We discovered we were wrong," Vorbeck says. Subsequently they stripped out 99% of the code they had customized. "SAP has already put best practices into the software," she says, "and once you come to realize that, it all works."

Management guru Tom DeMarco says the alignment mantra is highly suspect. "Like much of our conventional wisdom, this one is pure hooey," he says. "The real successes today are the companies who adjust their process for all the wild possibilities that technology has to offer."

Examples are everywhere. If Jeff Bezos had aligned Amazon.com's technology with standard bookstore business processes, he'd be CEO of a nice little retail store in Seattle rather than a $148 million groundbreaker whose sales rose 838% last year.

Caterpillar, Inc. is working on a system to allow customers to virtually test-drive tractors much like Microsoft users beta-test software. To use that customer input, Caterpillar will need to change its manufacturing processes to keep the design cycle fluid as late as possible. But it's worth it to produce exactly what customers want rather than try to sell them on a product after the fact.

And technology doesn't have to be futuristic to justify changing business processes. It just has to make sense.

Bramnick, the project manager, works for McKinsey & Co. in New York. But in a past life, he worked at one bank that always aligned IT to its processes and another bank that sometimes aligned the processes to IT.

The first bank bought a deposit system and did so much customization to align it to the business processes that it became almost prohibitively expensive to implement upgrades.

The second bank, which was in acquisition mode, bought a general, off-the-shelf deposit system and aligned its processes to fit the package, then made each of its acquired banks do the same. "They were in the business of buying lots of banks," Bramnick says. "They realized it was easier to consolidate onto a standard platform than a customized one. The faster they were able to assimilate, the more they were able to save. It became a strategic advantage."

Smart companies have always done that. In the '80s, Universal Underwriters Group had adjusters working via telephone with auto repair shops on pricing for insured service. Then-CIO Eileen Strider set up a phone system with call center capabilities (automatically routing calls to the right person, rolling over to the next available agent, intercepting phone numbers to display customer information on the screen, etc.), but she didn't push those features on the adjusters.

Even so, they soon changed their processes to take advantage of call center technology. "We showed them what could be done with the technology, and then they decided to change their structure and how they managed and how they did their business to use that technology," says Strider, now a principal at Strider & Cline, a Kansas City, Mo., IT consulting firm.

IT'S THE LEADERSHIP

Conventional wisdom says that when technology isn't aligned to the business processes, it's doomed to failure. Strider says that isn't a failure of technology, but of change management. "It's how you motivate users to want to use the technology that counts," she says.

"You're looking at the CIO as change agent when people may not want to change," Rosser says. "You need to have a CEO or COO who is a sufficient visionary to see the business value and say, 'Let's do it!' "□

Melymuka is Computerworld's *senior editor, management.*

Sometimes you have to do all the wrong things for all the right reasons. If you know of a managerially incorrect company that's barbecued a sacred cow with good results, drop her a line at kathleen_melymuka@cw.com.

Winning over middle managers

An IT project needs executive sponsors to survive, but it won't go far, even with a sponsor, without support from lower and midlevel management. If those folks aren't confident about the data or don't feel the system is easy to use, they'll go back to requesting reports from the mainframe.

The management textbooks provide two standard suggestions: Show people what the technology can do for them and find some easy-to-solve problem that can provide a quick success. But is there anything else you can do to win over middle managers?

During a panel discussion at a recent Data Warehouse Institute conference in San Diego, speakers came up with other suggestions for winning over the middle person:

▶ Schedule deliverables every 90 days, suggests William McKnight, vice president of information resource management at Anthem, Inc., a $6.5 billion health care insurer based in Indianapolis. "It keeps the fires burning, it keeps focus. It keeps [the system] on the top of the mind of all participants, both IT and the business," he says. A deliverable can be adding a subject area to a data warehouse such as claims, membership or coverage.

▶ Get users involved in the back-and-forth work of creating a data warehouse or data mart application with the information systems team, says David Johnson, senior manager of strategic marketing development at MCI Telecommunications Corp. in Colorado Springs. The big difference from conventional systems development work: IS isn't writing code, but providing different slices and sources of information.

For example, MCI often offers deals with airlines' frequent-flier programs. MCI's data warehouse earned credibility with some users as it worked with the data to see how customers were attracted by offers from different airlines.

— Allan E. Alter

f.y.i.

LCI International
Worldwide Telecommunications

In Depth

Ah, I

By Patrick Thibodeau

FEW DAYS AFTER WOLF HOFER arrived with his family in Guam in August 1993, the island suffered the largest earthquake on the planet that year. The quake measured 8.1 on the Richter scale, close to the magnitude of the great San Francisco earthquake of 1906.

Hofer wasn't shaken.

In the past four years, Hofer, manager of information technology at Deloitte & Touche's island office, has experienced less severe shakes, near brushes with major typhoons, power outages, power surges and mysterious communications breakdowns that occasionally plague his off-island network connections.

But as he sits at the outdoor bar of the rebuilt Guam Hilton, which was severely damaged in the big quake, and watches hotel workers tie down palm trees and remove deck chairs in anticipation of a typhoon that soon will pack 150-mph winds, Hofer has nothing bad to say about working on the island: "It's a user-friendly environment," he says.

It isn't, however, systems-friendly.

UPS AND DOWNS

Guam, a U.S. territory that's almost as far from the mainland as Japan, isn't an easy place for information systems professionals to work. Yet the obstacles that threaten hardware and networks and make disaster recovery a top concern also have helped IS workers thrive.

Guam's isolation and time zone difference — it's a seven-hour flight from Hawaii and a 14-hour difference from the East Coast — encourage self-reliance. And many IS workers on the island say that has given them a chance to make a real impact. It's a frontier attitude.

"If it has anything to do with automation, I'm the person who has to solve it," says Dan Sanders, IS manager at Mid-Pacific Liquor Distributing Corp., which distributes beer, liquor and cigarettes to islands throughout the Pacific — an area roughly the size of the continental U.S.

> On Guam, the living is easy. Except for the typhoons. And the earthquakes. Oh, and the bird-eating snakes island IS workers develop self-reliance and a good backup system

Protecting his systems from calamities, both man-made and natural, is high on Sanders' priority list. "We feel pampered nowadays because we only have one or two power outages a week," he says.

Protection from power outages, often caused by brown tree snakes that climb onto power lines and have eaten most of the island's native birds, can be accomplished with generators, line conditioners and uninterruptible power supplies. Most information systems have backups for the backups and the software to make sure they're working. Even grounding power supplies is tricky; builders have to drill through 100 feet of coral to get to solid rock.

Systems backups are mandatory. "Nobody wants to do the backup often, because you have to shut down systems, synchronize

everything. But the trade-off is you have a reliable system," says Luan P. Nguyen, director of the University of Guam's computer center.

Systems protection begins with the building. With the exception of the hotel high-rises and some downtown office buildings, most structures are no more than two or three stories tall. They are also flat-roofed and made of concrete. Wood structures are hard to find. Typhoons such as Omar, which hit the island in 1992 with wind gusts of 220 mph, weed out weak structures.

BLUE-LIGHT SPECIAL

Kmart Corp. took the island's tough conditions to heart when it opened a Guam store in 1995. Constructed with thick, reinforced concrete that is capable of surviving an earthquake registering 8.5 on the Richter scale and winds of more than 200 mph, the store also has its own water reservoir and sewage-pumping facility so it can reopen quickly after a storm.

"It's been built to withstand just about everything known to man," says Charlie Overmire, co-manager of the store.

Ron Schnabel, IS director of DFS Group LP's Pacific region, has turned disaster protection into a competitive advantage for his company. He keeps his stores open during a disaster.

With $5 billion in annual sales, San Francisco-based DFS Group operates the world's largest chain of duty-free shops. The company is Guam's largest private employer, with shops in all the major hotels.

Sales to the more than 1 million Japanese tourists who visit the island annually can be brisk during typhoons. "We don't miss a beat, basically," Schnabel says.

JOHNNY-COME-LATELY

Kyle Davie found more than natural disasters on Guam: He discovered opportunity that was missing in many mainland companies. The Texas native arrived in Guam a year ago as IS manager at airline Continental Micronesia.

Instead of being confined to a niche role, Davie took responsibility at Continental for everything from installing voice mail to upgrading a legacy environment. "If a person has initiative and the desire, you can really make a difference a lot quicker here than you can in the U.S.," he says.

Davie says the biggest problem he deals with, one often cited by other IS managers, is finding qualified help. Working on Guam's mere 212 square miles can be a difficult adjustment, and it's common for mainland workers to get "rock fever" and a ticket back home.

The IS labor shortage is compounded by the decision by many Guam natives to leave for college and IS careers and never return to the island.

Vince Munoz's career path exemplified that pattern at first, but he came back after working for several years on the West Coast.

Munoz is now automating Guam's paper-based criminal justice system. A year was spent entering data from 15,000 records into a Windows NT-based system that included document imaging and photographs of suspects. The imaging gave police officers immediate access to restraining orders.

Munoz says he misses the access to people and technologies he had on the West Coast, but the problems he's had working in a remote location have improved his skills in other ways. "I've learned not to be intimidated and increased my ability to discover things on my own," he says.

The Internet has helped Munoz and others working on the island stay in touch.

In Guam, people speak of the Internet in almost reverential terms. It has made a huge difference in everything from helping people feel connected to the larger world to improving their ability to get technical help.

But the Internet can't solve all problems. Ordering supplies from new and even old vendors can be difficult; salespeople often treat Guam as a foreign country and cite shipping restrictions.

That's frustrating to people such as Robert Leonard, a network designer at New World Information Systems.

"Make it easy for us to give you our money — that's how we run our business," he says.

The business of Guam is shifting to tourism from defense-related jobs, and the role of private-sector IS professionals seems to be expanding.

Guam, with its never-ending summer, clear ocean waters and lush vegetation, has become the permanent home for people such as Hofer, who worked for 10 years in the Arctic Circle before coming here.

The 150-mph typhoon that was spinning toward Guam when Hofer told his story from the Hilton's outdoor bar missed the island. So did the 220-mph storm that whipped by less than a week later.

But in December, Typhoon Paka hit Guam with what may have been the strongest winds ever recorded — up to 236 mph before the monitoring equipment blew away. It uprooted trees, demolished businesses and snapped cement power poles built to withstand 220-mph winds.

At Hofer's office, the emergency generators kicked in. As soon as the storm ended, "it was back to work as normal," he says. "Except, of course, for the dress. Without power and water, people rapidly ran out of clothes and came to work in shorts and T-shirts."

Hofer, like many on the island, says he can handle whatever catastrophe nature delivers. The trade-offs are worth it. "I like living on Guam," Hofer says.

Pause.

"I really like living on Guam." □

Thibodeau is a senior writer for @Computerworld. His Internet address is patrick_thibodeau@cw.com.

Weather watching

Two-thirds of the world's cyclones — storms with winds of 25 knots or more that frequently develop into typhoons — occur in the western Pacific. And they frequently form just east of Guam. Eighty-eight cyclones were recorded in 1996 alone.

The U.S. Naval Pacific Meteorology and Oceanography Center/Joint Typhoon Warning Center on Guam keeps naval ships out of harm's way and warns everyone else about a typhoon's storm track.

Improved computer forecasting models and access to the Internet have increased the accuracy of storm tracking, which potentially saves the military and area government and businesses millions in unnecessary storm-preparation costs.

A few years ago, the average error in a 72-hour forecast for a storm track was about 325 miles. It's now down to about 190 miles. "The Internet technology has played a role in that," says Air Force Lt. Col. Mark J. Andrews, director of the warning center.

The U.S. Navy weather forecasting system uses wireless connections to transmit weather data via World Wide Web protocols to ships at sea. Maps, storm tracks and weather data can be viewed through Web browsers by ship crews, and weather officers at sea can surf the 'net to compare forecasts made by other agencies and governments. That can sometimes lead to quick electronic mail from an inquiring weather officer or captain.

— Patrick Thibodeau

STEVEN A. SORONEN/PHOTOGRAPHIC ASSOCIATES

Annual Training Survey

THE LEADING EMPLOYERS AT IT TRAINING

personal TRAINERS

To get the most from their IT staff, leading companies help employees seek out the training that boosts their careers

STEPHEN RAMSEY

Brewing says good training leads to more frequent promotions for IT staffers

BY FAWN FITTER

After several years of emphasizing individual development, the training department at Texas Instruments, Inc. decided it was time to change. Now it's focusing on the next training step, what it calls "policy deployment" — helping employees understand how their priorities interconnect with those of their department and the organization as a whole.

For information technology employees at the Plano, Texas-based company, that means paying close attention to new technologies as well as new applications of technologies they already use.

And it involves paying close attention to individual training needs, to an extent remarkable even on *Computerworld*'s 1998 list of the leading 25 corporate information systems training programs.

The select members of this list rose to the top of a pool of 240 Fortune 1,000 companies based on their answers to a survey that covered the amount of time devoted to training, the number and variety of courses offered, the amount spent per employee and any personalized training plans offered to individuals.

To qualify for the leading 25 slots, companies had to do more than tailor their training programs to meet corporate goals. They had to invest money and time in individual IT employees' needs. They had to get as many employees as possible involved in planning their own training programs.

And they had to go beyond the basics.

CONTINUING EDUCATION

Every IT employee at TI, for example, has an individual development plan that requires a minimum of 40 hours of training per year. That includes appropriate SAP training.

"Everyone has a plan discussing their strengths and how to leverage them, as well as what areas they need to develop and how to do it," says human resources manager Molly Allen. "It's the most important component of our training program."

IT employees must review their training plan with their supervisors annually to ensure they're keeping up with technology, Allen says. And although training isn't directly linked to promotions, bonuses are linked to meeting goals in the company's business strategy.

What puts it all together, Allen says, is a software package that tracks registration and completion of training classes online. The training tool lets managers make sure their employees are reaching their training goals, and employees can use the system to search the available course offerings to find those that meet their needs.

Soon, the system even will tell IT

employees what classes they need in order to change positions within the department — for example, to move from Cobol programming to a different environment.

Like many companies on the top 25 list, TI offers IT employees classes in Unix system administration, Microsoft certifications, Oracle, C++, Java and numerous "soft skills" such as communications and marketing.

TI's training department later uses its online database to survey employees about how they're using their newly acquired skills on the job. Trainers also coach managers on ways to follow up on individual development plans.

TRAINING FOR THE BIG TIME

Although the companies on our top 25 list may not link training directly to compensation, they make it clear that results count. As business analyst Ray Barros at Coors Brewing Co. puts it, "Getting the training you need to do your job makes it possible to get promoted."

It's difficult to quantify the success of a training program. But something is clearly working at Coors, Barros says. He manages all IT department training at the brewing company's Boulder, Colo., headquarters. Barros says employees continue to improve because of good training practices. That results in more rapid promotion, and IT projects are completed on time more frequently.

A department bonus plan further rewards good performance by making training valuable in a literal sense as well. "We like to think of training as helping employees do what they do best and therefore making them more likely to move up and stay," Barros says. "How much does it cost the organization when someone doesn't know how to do something because he hasn't been trained?"

Coors invests a good deal of time creating training plans that mesh the company's goals with individual employees' career objectives. If a manager says an employee lacks communication skills, IT trainers try to identify specifics: Does the employee need public speaking skills? Presentation training?

"Once we've put a plan together, then we look at the budget to figure out what the priorities are, what needs to be done right then," Barros says.

A PERSONAL TOUCH

Attention to detail also is the rule at Wal-Mart Stores, Inc., where IT professionals are urged to learn technical and interpersonal skills. More than 200 IT staff members have taken a 12-week Dale Carnegie personal development course, says people director Sue Brann, who oversees training for the Bentonville, Ark.-based retailer's IS division.

"We have a huge emphasis on business skills, even for the technical people," Brann explains. "Interpersonal skills are just as critical for them as for anyone else." Wal-Mart's goal is that IT employees spend 10% of their job time on training. "This goal encompasses all types of training that reaches well beyond the classroom," Brann says.

The companies on our top 25 list may not link training directly to compensation, but they make it clear that results count.

NOT AN OPTION

Wal-Mart isn't the only company in the top 25 to encourage employees to invest time in training. One of the hallmarks of our list is that the companies on it also expect — and often require — employees to take advantage of what's offered. For example, each technical services staffer at Standard Insurance Co. in Portland, Ore., is required to take two weeks of outside class training per year, says Bill Turner, assistant vice president and manager of technical services.

Turner's department operates and administers systems across platforms, from mainframes to Unix boxes to LAN servers. This specific technical training may be offered to only one or two people at a time, depending on need. Right now, Turner says, they're learning how to apply different kinds of switched technology across routers, studying the topology of networks and administering various operating systems — all technical, structured and vendor-oriented skills.

Meanwhile, employees on the development side are devouring Java, Hypertext Markup Language and other application development tools that have to do with the World Wide Web, says Mary Gibbons, Standard Insurance's assistant vice president for systems and programming. "Once the company decided to get involved [in Web projects], we had to train people very quickly to bring them up to speed," Gibbons says.

When it comes to training, she says, needs are as individual as fingerprints. And just-in-time is the key phrase to remember. Besides, Gibbons says, it's a waste of time and money to train people for skills they'll never use. Her view: Give employees a broad overview, to be sure, but save the detailed technical training until people need it.

However they handle the details, all the companies on this leading 25 list know that their training departments need to keep on top of current needs and tailor their offerings accordingly, using the most current technologies and methodologies.

As Barros says, "By the end of the year, business has changed to the point that what we've planned at the start of the year has changed by about 25%. We have to do what we do very well, so we have ongoing training needs of our own." □

Fitter is a freelance writer in Brookline, Mass.

The leading employers at IT training

Rank	Company	Location	Average days IT staff spends in training	Average costs of training per IT staffer	Percentage of IT staff with annual training plan	Skills inventory	Skills-based development	Career path	Recruitment edge
1	The Home Depot, Inc.	Atlanta	15-20	$6,000	100%	•	•	•	•
2	Bay Networks, Inc.	Santa Clara, Calif.	>20	$20,000	100%	•	•	•	•
3	Computer Associates Int'l., Inc.	Islandia, N.Y.	15-20	$18,000	100%	•	•	•	•
4	Tech Data Corp.	Clearwater, Fla.	>20	$15,000	100%	•	•	•	•
5	Sallie Mae	Washington	>20	$4,000	100%	•	•	•	•
6	Xerox Corp.	Stamford, Conn.	10-12	$11,000	100%	•	•	•	•
7	Sears, Roebuck and Co.	Hoffman Estates, Ill.	10-12	$7,875	100%	•	•	•	•
8	Union Camp Corp.	Wayne, N.J.	15-20	$3,500	100%	•	•	•	•
9	American Management Systems	Fairfax, Va.	10-12	$4,500	100%	•	•	•	•
10	EMC Corp.	Hopkinton, Mass.	13-15	$5,000	100%	•	•	•	•
11	Wal-Mart Stores, Inc.	Bentonville, Ark.	>20	$4,000	100%	•	•	•	•
12	Johnson Controls, Inc.	Milwaukee	13-15	$3,000	100%	•	•	•	•
13	Coors Brewing Co.	Golden, Colo.	13-15	$8,000	100%	•	•	•	•
14	Norrell Corp.	Atlanta	13-15	$4,000	100%	•	•	•	•
15	Springs Industries, Inc.	Fort Mill, S.C.	10-12	$2,000	90%	•	•	•	•
16	Solectron Corp.	Milpitas, Calif.	15-20	$3,000	100%	•	•	•	•
17	AMP, Inc.	Harrisburg, Pa.	10-12	$3,500	100%	•	•	•	•
18	Ryhoff Sexton, Inc.	Lisle, Ill.	10-12	$8,000	100%	•	•	•	•
19	3Com Corp.	Santa Clara, Calif.	13-15	$2,000	100%	•	•	•	•
20	Avnet, Inc.	Great Neck, N.Y.	>20	$1,000	100%	•	•	•	•
21	Honeywell, Inc.	Minneapolis	13-15	$2,500	95%	•	•	•	•
22	Standard Insurance Co.	Portland, Ore.	10-12	$2,000	100%	•	•	•	•
23	Texas Instruments, Inc.	Dallas	10-12	$3,000	100%	•	•	•	•
24	Pacific Health Systems	Santa Ana, Calif.	10-12	$3,000	100%	•	•	•	•
25	Consolidated Stores Corp.	Columbus, Ohio	10-12	$10,000	70%	•	•	•	•

(Note: • means that component is offered)

COOL CAREER SITES

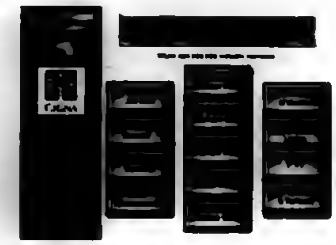
Good online resources for minorities in IT

BY LESLIE GOFF

Career sites created specifically for minorities (we aren't including women as information technology minorities) are neither plentiful nor, on the whole, very effective when you can find them. Each of the sites has good intentions, but few deliver the real goods. Mainly, they suffer from poor organization, design flaws and/or a lack of focus on diversity. The following sites are a few exceptions and a handful of others to keep an eye on.

Minorities Job Village: Career Site for Professionals of Color
www.minorities-jb.com

This is the standout among minority job search sites because it creates a true sense of community for African, Asian, Hispanic and Native American profesaionals. It also has an effective search engine that yields viable information systems career opportunities. A search for "programmer/analyst" dished up a full plate of IS positions at companies such as Alcoa, Cigna, Citizens Bank, Corning, Florida Power & Light, Mayo Medical Center, Maytag Appliances, Phizer, State Farm Insurance and other companies actively recruiting a diversified workforce.



Users who check the site regularly can click on "Hot Jobs of the Day" to get an immediate update on new positions.

Each targeted group haa its own "village" within the site. The villages contain a wealth of articles on personal and corporate life, economics and culture, motivational stories, up-to-date news, workforce statistics and links to minority associations, organizations, graduate programs and fellowships.

HONORABLE MENTION

Human Rights Campaign Workplace Issues Page
www.hrcusa.org/issues/workplac/index.html

Although not IT-specific, here's a useful site for lesbian and gay professionals who want to organize employee groups and to know their rights pertaining to discrimination based on sexual orientation. Well-organized and detailed, the site is intent on empowerment, clearly outlining the issues and offering practical advice and how-tos for organizing employee groups.

Get a complete legislative briefing on the Employment Non-Discrimination Act, E-mail Congress with your opinions and concerns and find out how to get your employer to add "sexual orientation" to its stated nondiscrimination policy. Check out the contact information for gay and lesbian employee groups, such as those at Chevron, Ford and Xerox, and then follow the site's recommendations for forming a group at your company. There'll be no stopping you once you've absorbed all this site's information.

Diversity/Careers in Engineering and Information Technology
www.diversitycareers.com/

Job searching here leaves a lot to be desired. It requires drilling down several layers and ultimately provides only a link to the employers' home pages or an automatic electronic-mail form. But at least you know that the companies, including DirecTV, Amerada Hess, Kellogg Co., Kaiser Permanente, MassMutual and others, are actively seeking minority IS recruits.

The site gets honorable mention for the well-focused articles in its bimonthly magazine, such as profiles of minorities in IS, how changing technologies create opportunities for a diversified workforce, and news and reports on diversity activities at a range of companies.

SITES WORTH WATCHING

Alianza
www.shpe.sgs.com/alianza/

Information Technology Thought Leaders: The Black Data Processing Association
www.bdpa.com

Diversity Career Fair
www.diversityfair.com

HispanData
www.hispanstar.com:80/hd/index.html

Goff is a freelance writer in New York.

COOL CAREER BOOKS

Are you Certifiable? Check out this list of IT titles to find out

BY ALAN R. EARLS

Novell, Inc. helped put vendor-based certification on the map when its server-based model of computing took off in the early 1990s. Now it seems that every major vendor is following suit. Here's a reading list of books that can help you determine whether you've got what it takes to get certified in the latest hot technologies.

The Complete Microsoft Certification Success Guide
By Anthony J. Gatlin and John Paul Mueller
Computing McGraw-Hill, New York; 1997; 384 pages; $39.95 (paperback)

Java Certification for Programmers and Developers
By Barry Boone
Book and CD-ROM
Computing McGraw-Hill, New York; 1997; 640 pages; $54.95 (hardcover)

MCSE Windows 95 Exam Cram: The First and Last Book You'll Need to Read Before You Take the Certification Exam for Implementing & Supporting Windows 95
By Ed Tittel, Kurt Hudson and James Michael Stewart
Coriolis Group, Scottsdale, Ariz.; 1998; 300 pages; $29.99 (paperback)

Microsoft TCP/IP Training: Hands-On, Self-Paced Training for Internetworking Microsoft TCP/IP on Microsoft Windows NT 4.0
By Microsoft Corp.
Book and CD-ROM
Microsoft Press, Redmond, Wash.; 1997; 432 pages; $99.99 (paperback)

Novell's CNE Study Guide for IntranetWare/NetWare 4.11
By David James and I. V. Clarke
Book and CD-ROM
IDG Books Worldwide, Foster City, Calif.; 1997; 1,600 pages; $89.99 (hardcover)

Novell's CNA Study Guide: IntranetWare/NetWare 4.11
By David James and I. V. Clarke
Book and CD-ROM
IDG Books Worldwide, Foster City, Calif.; 1997; 1,030 pages; $69.99 (hardcover)

The CNE-4 Study Guide
By James Chellis (editor), Richard L. Easlick and Michael G. Moncur
Book and CD-ROM
Sybex, Alameda, Calif.; 1996; 1,563 pages; $89.99 (hardcover)

MCSE: Internet Information Server 3 Study Guide
By Matthew Strebe and Charles Perkins
Book and CD-ROM
Sybex, Alameda, Calif.; 1997; 560 pages; $49.99 (hardcover)

Earls is a freelance writer and business book editor in Franklin, Mass.

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FLEXIBLE WORKPLACES AND FAMILY-FRIENDLY BENEFITS HELP BEANTOWN COMPANIES ATTRACT AND KEEP SCARCE TALENT / BY JILL VITIELLO

DEANNA KREINHEDER commutes about 20 minutes from her home in Brighton, Boston's western-most neighborhood, to the John Hancock building downtown. She gets in early and spends the next eight or nine hours handling papers, meeting with peers and grabbing a snack when she can. Deanna is 3.

Her mom, Karen Kreinheder, is lead systems analyst at John Hancock Mutual Life Insurance Co., where she's worked for 16 years. Kreinheder recently became a single mother and relies on John Hancock's Child Care Center to take care of her daughter while she works. "The day care center is top-notch. It keeps me at John Hancock more than any other single thing," Kreinheder admits.

IS SALARIES IN BOSTON

Title	Regional compensation	National average
Chief information officer	$123,000	$123,000
Director of systems development	$90,000	$82,000
Director of networks	$75,000	$74,000
Computer operations manager	$60,000	$56,000
Database manager	$44,000	$61,000
Senior systems analyst	$55,000	$56,000
Systems analyst	$53,000	$51,000
Webmaster	$48,000	$51,000

Source: Computerworld's 1997 Annual Salary Survey

Flexible job benefits allowed Karen Kreinheder to adopt daughter Deanna and stay with John Hancock's IT department

With her skills as an application database administrator for IBM's DB2 and Sybase, Inc.'s SQL, Kreinheder could jump ship and probably command a higher salary with another company. Boston-area companies are desperately seeking skilled information technology professionals in all disciplines.

The Boston IT job market has been described as "crazy" by technical recruiters and hiring managers.

"The hottest job — and the hardest to fill — is database administrator," says Sam Webber, who has managed technical recruiting at Source Services in Boston for 17 years. "Smart [database administrators] know they're a hot commodity." But Kreinheder is staying put. "Headhunters call every month," she says. "The first thing I ask them about the prospective employer is what kind of child care they offer. My daughter is happy with her friends across the street. No amount of money can replace that."

Kreinheder adopted Deanna from China when the child was 13 months old. John Hancock reimburses adoption expenses within a certain limit. And John Hancock's family-friendly benefits, which include the subsidized day care center, flexible work schedules and programs for school-age children, make it an ideal place for a single-parent information systems professional to work. Without those benefits, Kreinheder wouldn't have been able to stay at the company, she says.

That reflects a growing trend in arguably the country's second-hottest IT job market: With salaries on the rise everywhere, local companies are expanding their other benefits and marketing their working environments to attract Beantown's brightest.

At BankBoston, for example, competitive salaries, plenty of career growth opportunities and top benefits help the nation's 15th-largest bank find and keep strong IS candidates, says George Best, senior technical recruiter. In the mix: the availability of four-day work weeks, telecommuting options and rebates for child care expenses. "We're more interested in making sure the work gets done properly and on time than we are in micromanaging our people," Best says.

And when two women at Coopers & Lybrand LLP in Boston became mothers, they were granted flex-time schedules. That option is open to all employees who can make a convincing business case to the company's approval committee. "We want to keep the best talent," says Susan Banta, human resources manager at Coopers & Lybrand.

For companies such as John Hancock, the payback is loyal, productive employees.

Kristin Gelinas, a technical recruiter at John Hancock, notes that the IT turnover rate at the insurer is far lower than the local industry average. And the company can keep salaries competitive, rather than inflated, because of the appeal of other offerings.

Before she joined John Hancock last year, Gelinas worked for an IS headhunter in the city. She says in the early '90s, there were 20 applicants for every systems job in Boston. Now, she says, it seems that figure has flip-flopped. The city's economic base is built largely on insurance companies, banks and brokerages.

The hot skill set is anything related to the World Wide Web or electronic commerce, Webber says.

Database analysts and administrators; networking specialists; and programmers with C++, Java, Visual Basic and PowerBuilder experience are in high demand, Webber says.

Professionals with five to seven years of experience can expect to earn $60,000 to $80,000 per year, he says. □

RELATED LINKS

- **Best of Boston Web sites:** *www.bostonusa.com*
- **Greater Boston Convention and Visitors Bureau: Where to go, what to do, where to stay, how to get there** *www.boston.com*

Vitiello is a freelance writer in East Brunswick, N.J.

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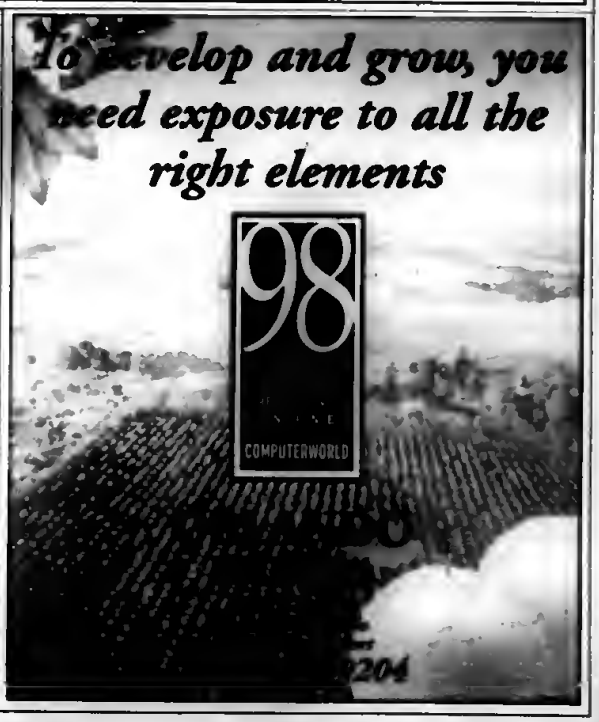

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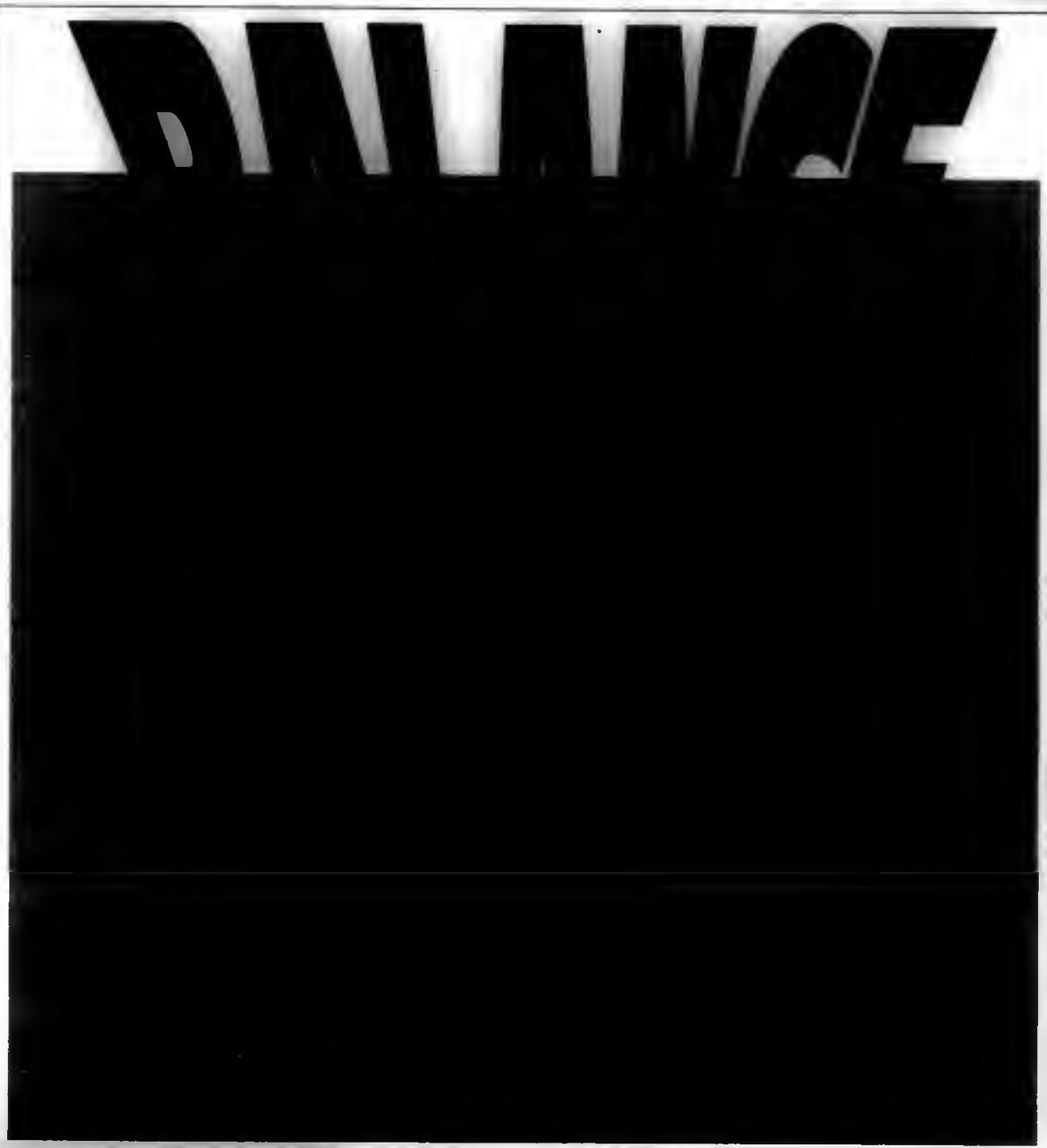

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- **Project Managers**

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NETWORK
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- **Consultants**

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The opportunities above require a Bachelor's Degree in a related discipline, preferably emphasizing areas relevant to that position. For consideration, send your resume to: **Modine Manufacturing Company, Attn: Human Resources, 1500 DeKoven Ave., Racine, WI 53403. Fax: 414-636-1742.**

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- Set up test JCL job streams, and use DB2 and MVS utilities to set up and display test data.

Programmer Analysts
- Analysis and design of complex applications using Easytrieve Plus, SAS, JCL, C, C++.

Technical Project Leader
- Lead logical and/or physical database design of large, complex applications.
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- Experience in IBM MVS/TSO, JCL/PROC and IBM utilities required.

Software Programmers
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- Design and code software on the MVS platform using COBOL and C. Will train on C or Tandem.

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Communications Specialist
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Software Engineer to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design; direct software system testing procedures using expertise in C++, Oracle, JAVA, and Javascript. Requirements: Bachelor's degree in computer technology, computer science or related field, two years experience as a software engineer or computer programmer, and knowledge of C++, Oracle, JAVA, and Javascript. Salary: $82,000/year. Working conditions: 8:00 A.M. to 5:00 P.M., 40 hours/week. Apply: PA Job Center, 2103 Ninth Avenue, Beaver Falls, PA 15010. Job No. 7004014.

Software Engineer to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design; direct software system testing procedures using expertise in Oracle 7.3, PL/SQL, Pro*C, and PERL. Requirements: Bachelor's degree in electronics and communications, computer science or related field, two years experience as a software engineer or computer programmer, and knowledge of Oracle 7.3, PL/SQL, Pro*C, and PERL. Salary: $58,000/year. Working conditions: 8:00 A.M. to 5:00 P.M., 40 hours/week. Apply: PA Job Center, 350 N. Fourth Street, Indiana, PA 15701. Job No. 5016884.

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Systems Analyst - client sites in Atlanta, GA & Co. loc in Marietta, GA. Analyze, design, develop applications. Perform quality control. Provide technical support. Utilize DB2, CICS, COBOL & VSAM. Techs/Engg, Math or Comp. Sci. 1yr/exp. in job offered or 1yr as Programmer &/or Trainee performing the above. Several openings avail. 40hrs/wk (8-5, M-F) $52,997/yr. Must be willing to travel 40% of time. Report or send two resumes to: Georgia Dept. of Labor, Job Order #GA 6211868, 465 Big Shanty Rd, Marietta, GA 30066-3303 or the nearest Dept. of Labor Field Service Office. Must have proof of legal authority to work in the U.S. An employer paid ad.

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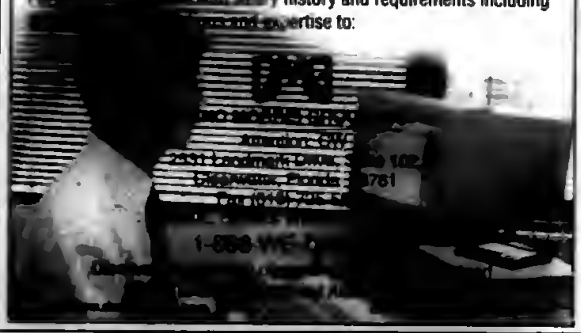

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Programmer/Analyst - client sites in Atlanta, GA & Co. loc in Marietta, GA. Analyze, design, develop, implement & maintain software applications. Convert & tune existing applications. Provide technical support. Utilize DB2, CICS, INTERTEST, IMS DB. Bache/Comp. Sc. Engg or Math. 1 yr/exp. in job offered or 1 yr as S/ware Engr &/or Jr. Prog/Analyst. Exp. in job offered or related occ. must incl 1 yr/exp. using DB2, CICS, INTERTEST & IMS DB. Must be willing to travel 40% of time. Several openings avail. 40hrs/wk (8-5, M-F) $52,997/yr. Report or send two resumes to Georgia Dept. of Labor, Job Order #GA 8211908, 485 Big Shanty Rd, Marietta, GA 30066-3303 or the nearest Dept. of Labor Field Service Office. Must have proof of legal authority to work in the U.S. An employer paid ad.

Software Engineer. Support and administer UNIX, Windows NT and Oracle systems. Provide remote access and support for users. Plan and implement security. Trouble shoot and report application coding errors. 8 am - 5 p.m. M-F 40 hrs/week. $55,000/annum. Requires Bachelor's in Computer Science or Engineering and 5 years' experience in job offered or 5 years' exp. as a Programmer Analyst, Consultant, LAN Admin. Experience must comprise administration and support of UNIX, Windows NT, and Oracle systems. Employer paid relocation possible. Apply at or send resume to LA Office of Employment Security, Job Order #5402321, 6701 Airline Highway, Metairie, LA 70003. Ad paid by an equal employment opportunity employer

SOFTWARE ENGINEER required. Analysis & modeling of client/server-based information systems on Windows NT & UNIX platforms using both structured & object-oriented techniques. Database design/development on SQL Server & GUI design using C/C++, PowerBuilder, Access & Oracle. Master's degree required in any computer intensive curriculum plus 1 year of experience in any occupation performing the job duties described above. Must have proof of legal authority to work in the U.S. Salary: $40,000/year for a 40-hour work week. Interested applicants contact the Oklahoma State Employment Service, 11654-A E. 21st St., Tulsa, Oklahoma 74129 (ID#72099) or Telephone No. (918) 437-4473. Refer to Job Order #3071153. Ad paid by an Equal Opportunity Employer

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Software Design Engineer (MSS) - Provide software support for the Basic Rate Interface (BRI) of an Integrated Services Digital Network (ISDN) D-Channel Handler (DCH) product line on a telecommunications digital switch system. Lead a 2-3 person team in implementing phase II for ISDN capacity enhancement. Conduct complete software life cycle development including requirements, design, Pascal based programming, debugging, testing and delivery using structured design and programming methodology. Lead a support team to solve problems reported from external customers and internal test groups, including providing code inspections, test plans and patches for existing sites. Screen pending internal and external problem reports and monitor status until closed. Update problem reports coordinator Web Page and manage department World Wide Web resources, including using Web technology for enhancing productivity and quality. Participate in product quality and continuous improvement initiatives. Mentor new team members, interns, and contractors; including training in digital switch tool set development environment, software architecture and lab environment. Requires a Bachelor's degree in Computer Science and two years experience in the job offered, or as a Senior Software Engineer or Software Engineer. Experience must include software structured design and complete software development life cycle. M-F 8:00 a.m. to 5 p.m. $56,660 per year. Job in Research Triangle Park, NC. Apply to nearest Job Service office or send resume and Social Security number to Job Service, 1105 Briggs Avenue, Durham, NC 27703. J.O.#NC3072843 and DOT code 030.062-010.

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Bonds	fixed income and derivative product knowledge
Risk Management	analysis and design of enterprise wide systems
Quantitative Research	mathematical modelling, X product
BPI	business process reviews and performance optimisation
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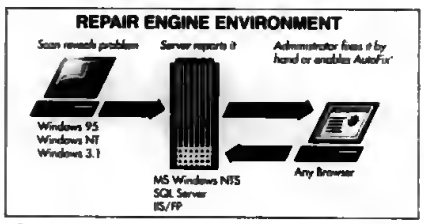

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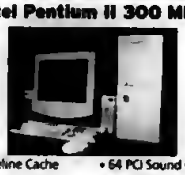

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PSINet (H)	24.7
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NetManage Inc.	19.3
Ascend Communications	17.1
Cypress Semiconductor Corp.	17.0
Micrograte Inc. (H)	16.1

DOLLAR

Yahoo! Inc.	7.75
Xerox Corp. (H)	7.13
Microsoft Corp. (H)	6.81
Lucent Tech. (H)	6.63
Cisco Systems Inc. (H)	5.81
America On-Line (H)	5.75
Gateway 2000 Inc. (H)	5.75
Ascend Communications	5.44

Losers

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Data Race Inc.	-42.2
Gateway Computer Corp.	-42.0
Pyramid Inc.	-41.1
Magnitude Corp.	-40.8
Micro Focus	-9.6
Analysts Int'l	-9.1
Mosel Semiconductor Inc.	-9.0

DOLLAR

Sprint Corp. (H)	-4.19
Micro Focus	-5.06
Electronic Data Systems Corp. (H)	-4.25
Mosel Semiconductor Inc.	-2.56
The Boeing Co. (H)	-2.38
Intl Rectifier Corp. (H)	-3.13
Emulex Corp. (L)	-3.00
Analysts Int'l	-3.00

INDUSTRY ALMANAC

Modems trip up 3Com

Struggling with inventory control problems, networking giant 3Com Corp. (Nasdaq:COMS) last week reported plunging quarterly sales. Stock in the Santa Clara, Calif.-based company, which is still tying up its acquisition of modem maker U.S. Robotics, was down by more than 45% following the report.

For the quarter ended March 1, 3Com's net income was $13.9 million — a drastic dip from $179 million last year. Analysts polled by First Call Corp. had expected results to be 14 cents per share and instead saw only 4 cents per share.

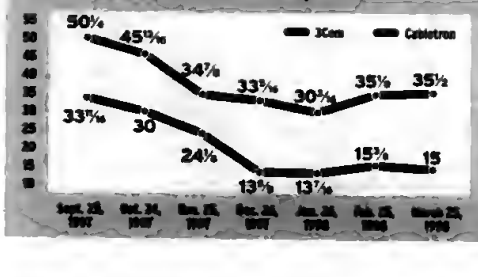
3Com wasn't the only networking vendor to stumble. Rochester, N.H.-based Cabletron Systems, Inc. (NYSE:CS) reported a quarterly loss of $6.3 million compared with a profit of $72.6 million last year. Cabletron officials say a total of 180 people will be laid off in its Ohio and New Hampshire manufacturing plants. And officials at Bay Networks, Inc. (NYSE:BAY) in Santa Clara, Calif., warn that the company's earnings are expected to drop this quarter. But they say sales should pick up when Bay's Accelar Layer 3 switch begins shipping in volume in the fourth quarter.

Analysts say 3Com was recovering from a modem standards battle that stalled sales over the past year. Lucent Technologies, Inc. and 3Com recently settled on a standard technology for 56K bit/sec. modems.

3Com says it has reduced its inventory of modems and other products, cut expenses and is shifting to a new channel model with improved demand forecasts to limit future product backlogs. 3Com also faces heavy competition in the modem, switching and remote access product market, analysts say. "Some of their weakness is the consumer [market]," says Dave Jones, an analyst at the "California Stock Letter" newsletter in Half Moon Bay, Calif. "And all these [networking] companies are struggling against Cisco." — Kim Girard

NETWORKING SLIDE

Slowing sales for 3Com and Cabletron have affected their stock prices



Exch	52-Week Range			Mar 27 1998	Net Change	Pct Change
COMS	59 69	24 00	3 COM Corp	36 31	2 31	6 8
ANT	99 50	27 63	AMERITECH Corp (H)	99 56	0 25	0 5
ASND	80 00	32 00	Ascend Communications	67 25	5 88	11 1
T	80 88	30 75	AT & T (H)	64 00	0 81	1 2
BNYN	6 00	1 19	Banyan Systems Inc (H)	6 19	1 44	50 3
BAY	31 88	15 50	Bay Networks Inc	27 81	0 86	1 6
BEL	108 00	56 75	Bell Atlantic Corp (H)	101 19	5 13	1 0
BLS	65 56	39 50	BellSouth Corp (H)	64 00	0 11	0 2
BRKT	19 00	9 25	Brooktrout Technology	18 00	1 63	9 6
CS	50 50	12 63	Cabletron Systems	15 81	0 44	2 8
CCBH	21 88	8 56	Centigram Communications	11 00	0 00	0 0
CSCO	88 88	30 19	Cisco Systems Inc (H)	80 69	3 81	9 1
CMNT	8 13	1 31	Computer Network Tech	4 63	9 16	4 2
CNCA	20 38	7 88	Concentric Network Corp	14 00	0 19	1 0
DSCI	52 75	18 00	DSC Communications (L)	17 13	0 41	2 1
FORE	21 91	10 00	FORE Systems Inc	15 31	0 56	1 8
GDC	9 50	3 25	General Datacomm Indst	6 00	0 06	1 1
GSX	51 00	56 13	General Signal Networks	99 99	1 94	9 7
GTE	59 88	99 50	GTE Corp (H)	59 13	9 88	6 1
IDU	126 88	40 88	Gateway 2000 (H)	126 00	6 63	5 5
MADGF	9 19	1 25	Madge Networks NV	8 13	0 13	2 0
MCIC	50 91	27 91	MCI Communications Corp (H)	49 69	0 88	1 6
NETM	5 25	2 88	NetManage Inc	4 50	0 88	19 3
NTAS	3 00	0 63	Netsys Corp	1 75	0 13	6 7
NCDN	14 88	1 88	Network Computing Devices	10 16	0 19	1 8
NWK	22 50	11 25	Network Equipment Tech	15 44	0 88	0 4
NN	69 38	18 94	Newbridge Networks Corp	21 50	0 50	0 2
NT	65 44	31 08	Northern Telecom Ltd (H)	64 00	2 00	1 2
NOVL	10 13	8 28	Novell Inc	10 25	0 50	0 4
ODSI	98 88	5 19	Optical Data Systems Inc	5 94	0 06	1 1
PCTI	14 13	5 63	Picturetel Corp	6 78	0 01	0 1
PTON	1 50	0 97	Proxicom Inc	1 25	0 18	11 1
RACO	4 13	1 00	Racotek Inc (H)	1 56	9 44	10 0
RADS	29 38	7 00	Radiant Systems Inc	21 56	9 00	1 0
RETK	7 63	3 88	RETIX	4 88	0 00	0 0
SBC	99 56	24 63	SBC Communications (H)	43 63	0 16	0 9
SFA	24 94	14 00	Scientific Atlanta Inc	19 56	0 25	1 3
SHVA	18 44	8 00	Shiva Corp	10 50	0 88	3 7
FON	79 63	42 25	Sprint Corp (H)	63 16	6 19	8 3
QWST	41 88	13 19	Qwest Communications Int'l	40 06	0 81	0 8
SMSC	18 13	0 00	Standard Microsystems Corp	9 25	0 50	5 8
USW	56 75	31 15	U S West Inc (H)	54 88	1 19	2 1
XIRC	16 75	7 50	Xircom	14 31	1 88	10 6
XYLN	50 88	12 38	Xylan Corp	22 63	1 63	6 1

PCs and Peripherals — UP 0.4%

AAPL	49 56	12 75	Apple Computer Inc	27 13	0 75	2 8
CPQ	50 75	14 25	Compaq Computer Corp	36 44	3 88	15 1
DELL	71 50	10 56	Dell Computer Corp	88 00	4 81	7 0
GTW	99 19	19 88	Gateway 2000 Inc (H)	47 25	9 75	13 0
HWP	72 50	99 13	Hewlett-Packard Co	84 50	0 69	1 1
MUEI	25 88	8 44	Micron International Inc	12 63	0 50	4 0
NIPNY	74 00	48 69	NEC America	52 25	0 88	0 0
SGI	30 31	10 94	Silicon Graphics	53 75	0 19	1 3
SUNW	53 51	25 88	Sun Microsystems Inc	41 88	2 81	5 9

Large Diversified — UP 2.4%

DGN	37 50	13 88	Data General Corp	17 13	0 13	0 7
DEC	62 63	25 00	Digital Equipment Corp	51 94	1 56	7 6
IBM	118 50	39 33	IBM	104 88	2 50	2 8
MDCD	5 75	2 88	Meridian Data Inc	6 44	0 75	10 5
NCR	43 38	25 63	NCR Corp	32 63	0 25	0 8
PRCM	13 63	7 00	Procom Technology Inc	9 50	0 25	2 9
SQNT	37 25	14 63	Sequent Computer Sys	18 94	0 63	3 4
TEXM	6 00	2 99	Texas Micro Inc	5 75	0 06	1 3
STRA	80 75	28 75	Stratus Computer Inc	44 50	1 00	9 5
UIS	80 19	5 75	Unisys Corp	19 00	0 88	2 6

Software — UP 3.9%

ADBE	53 13	33 50	Adobe Systems Inc	45 50	2 00	4 8
AMSWA	15 63	5 88	American Software Inc	7 13	0 19	2 6
APLX	12 38	3 31	Applix Inc	5 56	0 88	11 7
ARSW	53 25	17 00	Arbor Software	99 19	0 55	1 2
ARDT	15 13	5 88	Ardent Software (H)	15 63	1 31	8 8
ARSC	32 88	17 75	Ares Corp	28 75	2 88	0 0
ADSK	51 13	25 38	Autodesk Inc	46 31	1 06	2 2
BGSS	45 75	27 88	BGS Systems Inc (H)	45 16	1 13	2 5
BMCS	82 75	50 63	BMC Software Inc	80 56	2 51	5 0
BOOL	25 75	15 13	Boole and Babbage (H)	24 25	0 67	2 8
BORL	12 19	5 88	Borland Int'l Inc	9 50	1 16	11 7
BOBY	16 75	8 63	Business Objects	15 00	3 00	6 1
CAYN	4 88	0 94	Caere Corp Software Inc	2 00	0 00	0 0
CNTR	4 88	0 88	Centura Software	1 75	0 00	3 6
CHKP	50 50	17 63	Checkpoint Software	42 69	1 31	3 2
COGNF	15 00	17 63	Cognos Inc	25 00	1 00	5 9
CA	50 63	25 00	Computer Associates	36 56	5 75	7 1
CPWR	51 25	13 88	Compuware Corp (H)	99 88	2 00	3 7
CSRE	14 63	4 25	Consumer Inc	7 94	0 88	5 0
COSPF	7 00	1 99	Corel Corp	2 00	0 06	0 0
DBTI	5 50	2 13	Database Technologies Inc	3 50	0 25	6 7
FILE	66 27	9 50	Filenet Corp (H)	33 88	0 50	1 1
FRTE	25 50	6 50	Forte Software	7 19	0 69	10 6
FTPS	0 50	1 00	FTP Software Inc	1 38	0 22	7 1
GPSI	35 00	20 50	Great Plains Software, Inc	50 00	1 00	5 1
HUMC	56 25	22 00	Humminbird Comm Ltd	50 75	0 38	1 0
HYSW	50 00	13 00	Hyperion Software Corp	41 88	2 50	8 0
IRIC	80 00	11 75	Information Resources	15 75	0 00	0 0
IFMX	13 50	4 00	Informix Corp	8 00	0 22	2 8
INGR	19 19	8 25	Intergraph Corp	8 75	0 31	3 4
LEAF	4 00	0 81	Interleaf Inc	2 88	0 50	8 1
ISLI	35 25	8 25	Intersolv Inc	11 00	0 06	0 6
INTU	55 25	25 25	Intuit Inc	47 81	1 81	3 9
JDEC	48 63	24 88	J.D. Edwards Co	33 50	0 25	0 7
TLC	22 88	5 50	Lawson Co (Tenn) (H)	22 88	9 00	5 0
LCWK	13 94	4 13	Logic Works	10 50	1 00	8 8
MAPS	16 25	7 88	Mapinfo Corp	11 88	1 50	50 0
MATH	4 63	2 19	Mathsoft	3 88	0 00	1 0
MENT	15 13	8 50	Mentor Graphics	10 19	0 09	0 0
MFCY	80 63	10 13	Micro Focus	67 44	5 00	9 0
MCSO	11 75	4 00	Microsoft Inc (H)	11 00	1 01	16 1
MSFT	90 94	44 88	Microsoft Corp (H)	88 88	6 81	8 4
OBJS	2 94	0 44	ObjectShare, Inc (H)	2 91	0 72	32 9
OMTI	15 00	8 25	Omtool Ltd	12 88	0 00	0 0
ORCL	42 13	21 75	Oracle Corp	31 19	2 31	8 0
PMTC	34 88	23 75	Parametric Technology	33 56	0 84	1 9
PSFT	53 38	15 31	Peoplesoft	51 00	2 00	4 1
PTEC	18 50	11 00	Phoenix Technologies	12 31	0 50	3 5
PSQL	25 00	8 50	Platinum Software (H)	23 00	0 25	1 1
PLAT	21 13	10 25	Platinum Technology	24 88	1 81	7 8
PRGS	31 00	15 25	Progress Software Corp	29 88	0 19	0 0
RNBO	80 00	19 75	Rainbow Technology Inc	25 81	0 25	1 0
REDB	16 88	5 00	Red Brick Systems Inc	5 94	0 44	6 8
ROSS	5 94	3 75	Ross Systems, Inc	3 94	0 15	4 1
SAPE	67 25	19 00	Sapient Corp (H)	45 75	3 63	8 6
SCOC	7 25	3 13	SCO Inc	4 88	0 19	4 0
SDTI	44 88	22 75	Security Dynamics Tech	99 94	1 88	1 7
SOTA	22 25	8 50	Sterling Software Inc (H)	22 25	0 61	2 2
SSW	37 63	27 00	Systems Software Inc (H)	36 88	0 50	1 0
SDRC	80 00	35 25	Structural Dynamics Research	21 88	1 50	6 0
SYBS	23 63	6 88	Sybase Inc	9 81	0 00	0 1
SYMC	29 50	12 00	Symantec Corp (H)	28 19	0 99	2 5
SNPS	47 13	21 75	Synopsys	12 99	2 75	9 2
SSAX	17 88	3 88	System Software Assoc	8 88	0 25	3 0
SYSF	14 38	1 88	Systemsoft Corp	5 88	0 00	2 3
BAANF	80 25	20 94	Tan Baan Co (H)	66 88	3 50	6 8
TRLG	5 19	1 56	Transaction Corp	2 22	0 19	9 2
VSIO	99 11	19 13	Visio Corp	43 25	7 81	1 0
WAVE	20 44	10 50	Wall Data Interactive Software (H)	19 50	0 44	2 2
WALL	80 13	11 81	Wall Data Inc	14 75	0 38	2 5
WANL	11 88	9 00	Wang Laboratories Inc (H)	10 50	0 38	3 7

Networking — UP 5.7%

AMZN	80 25	18 75	Amazon.com	80 00	2 50	2 0
AOL	69 88	20 63	America On-Line (H)	63 50	5 75	9 2
AIHM	80 19	10 63	At Home Corp	31 94	1 31	4 0
EDMY	22 19	8 88	Edmy Corp	10 38	0 61	6 1
EXCT	50 25	9 50	Excite Inc	69 81	0 31	0 6
SEEK	27 88	9 06	Infoseek Corp	23 11	0 50	2 0
LCOS	99 75	13 19	Lycos Inc	43 88	0 75	1 1
NSCP	49 50	14 88	Netscape Comm Corp	19 25	0 00	0 1
NSOL	31 75	11 75	Network Solution Inc (H)	30 11	2 50	9 0
OMKT	39 75	8 50	Open Market Inc	19 88	0 88	4 7
PEGS	27 13	12 88	Pegasus Systems	23 50	0 16	1 0
PSIX	12 31	4 25	PSINet (H)	12 19	2 44	24 7
QDEK	1 50	1 19	Quarterdeck Corp	2 88	0 05	1 5
SCUR	13 25	4 75	Security Computing Corp (H)	11 81	0 88	4 3
SPYG	12 00	4 88	Spyglass Inc	8 11	0 44	5 8
YHOO	81 56	18 81	Yahoo! Inc	91 63	7 75	8 2

Semiconductors — UP 1.2%

AMD	45 75	9 13	Advanced Micro Devices	24 25	1 25	5 4
ADI	38 69	21 00	Analog Devices Inc	33 56	0 81	2 5
CRUS	17 75	8 00	Cirrus Logic	10 31	0 25	2 4
CY	18 50	7 50	Cypress Semiconductor Corp	9 88	1 44	17 0
INTC	150 00	44 13	Intel Corp	90 19	2 38	4 8
LSCC	74 56	19 75	Lattice Semiconductor	54 00	2 69	5 2
LSI	46 88	18 63	LSI Logic Corp	26 19	1 94	8 7
MCRL	48 88	13 00	Micrel Semiconductor Inc	35 81	3 56	9 0
MU	80 00	22 00	Micron Technology	29 94	1 00	4 9
MOT	80 50	52 00	Motorola Inc	51 31	1 13	5 8
NSM	42 88	19 50	National Semiconductor	20 63	0 88	4 4
RMBS	80 75	26 00	Rambus Inc	33 25	2 50	8 1
TXN	71 25	36 81	Texas Instruments	50 50	1 88	2 0
VLSI	50 00	16 81	VLSI Technology	17 88	0 06	0 4
XLNX	58 50	28 88	Xilinx	39 50	0 88	2 3

Peripherals and Storage — UP 4.6%

ADPT	94 25	39 50	Adaptec Inc	80 88	3 00	4 1
APCC	34 50	15 25	American Power Conversion	28 75	1 00	3 8
CREAF	25 50	8 63	Creative Technology Ltd	23 88	1 63	7 4
RACE	16 75	2 13	Data Race Inc	2 25	0 31	13 2
DTM	12 13	7 88	Datatape Corp (H)	11 50	0 63	5 2
EMC	29 19	16 99	EMC Corp (H)	17 88	0 19	0 5
EMLX	21 25	8 63	Emulex Corp (L)	8 63	3 88	25 8
ESCC	35 88	22 13	Evans and Sutherland	29 25	1 38	4 9
EXBT	16 50	6 63	Exabyte	8 88	0 44	4 8
ISLF	1 88	0 88	Intelligent Hard Systems (L)	0 94	0 06	6 1
IOMG	18 75	8 88	Iomega Corp	8 94	0 25	9 5
IPLS	2 81	0 94	IPL Systems Inc	1 50	0 88	0 0
MMAG	80 88	33 75	Mmagic Inc	14 81	0 19	1 5
MTSI	34 88	13 00	Micro Touch Systems Inc	18 00	0 81	4 7
MTIC	11 88	3 56	MTI Technology Corp	13 88	0 75	5 8
AQM	23 88	2 25	Qmax Inc	4 50	0 13	6 7
QNTM	80 25	31 75	Quantum Corp	21 81	1 44	7 1
RDUS	8 13	1 88	Radius Inc	2 88	0 88	23
SEG	56 25	17 75	Seagate Technology	25 88	1 88	7 3
SCIS	15 88	5 00	Storage Computer Corp	6 88	0 94	12 0
STK	75 63	55 25	Storage Technology (H)	75 63	1 75	2 4
TEK	99 99	53 50	Tektronix Inc	66 75	2 56	3 8
WDC	54 75	14 88	Western Digital Corp	18 88	5 19	7 1
XRX	104 50	54 75	Xerox Corp (H)	104 19	7 13	7 3

Electronics — UP 0.2%

AMSY	80 00	17 63	American Megat Systems	27 13	1 00	4 8
ANLY	16 50	14 10	Analytics Int'l	80 00	3 88	9 1
AUD	70 88	28 56	Audio Data Processing (H)	80 50	1 19	1 7
CASO	50 88	21 75	Cambridge Tech Partners (H)	99 88	0 25	0 5
CEW	55 88	25 88	Cerberus Corp (H)	56 88	0 88	1 2
CDCO	44 11	18 50	Comdisco Inc (H)	42 00	0 81	3 0
CPU	50 00	15 88	Computer Inc	25 94	1 94	7 0
CMRZ	53 50	17 88	Computer Horizons	99 50	0 00	0 0
CSC	56 75	38 94	Computer Sciences	50 88	1 88	1 9
TSK	69 38	16 63	Computer Task Group	42 50	2 44	0 1
EGGS	12 75	1 88	Eggshead Discount Software	88 88	0 88	0 0
EDS	88 88	25 50	Electronic Data Systems (H)	46 50	4 25	8 4
ICO	39 63	19 75	Imacon Corp	27 13	1 88	3 8
INEL	7 88	2 25	Intelligent Electronics	3 50	0 13	3 8
AEA	51 75	14 81	Keane Inc (H)	51 75	1 94	3 9
MICA	25 75	50 88	Micronics Inc	12 44	0 19	1 5
PAYX	50 75	25 63	Paychex (H)	57 63	2 75	5 0
PMES	80 88	41 88	Policy Management Sys	78 94	1 19	1 5
REY	27 13	15 75	Reynolds and Reynolds	21 50	0 88	1 0
SCBI	22 25	50 88	SCB Computer Tech Inc	21 44	1 94	8 8
SEAC	60 88	30 75	SEI Corp	55 00	0 25	0 4
SMS	99 50	16 75	Shared Medical Systems (H)	78 56	0 44	0 6
SSPE	24 25	10 00	Software Spectrum Inc	22 50	1 00	5 5
SDS	35 13	20 75	Standard Data Systems	33 00	0 88	1 3
VST	57 25	8 88	VanStar Corp	12 88	0 44	3 3

KEY (H) = New annual high reached in period (L) = New annual low reached in period

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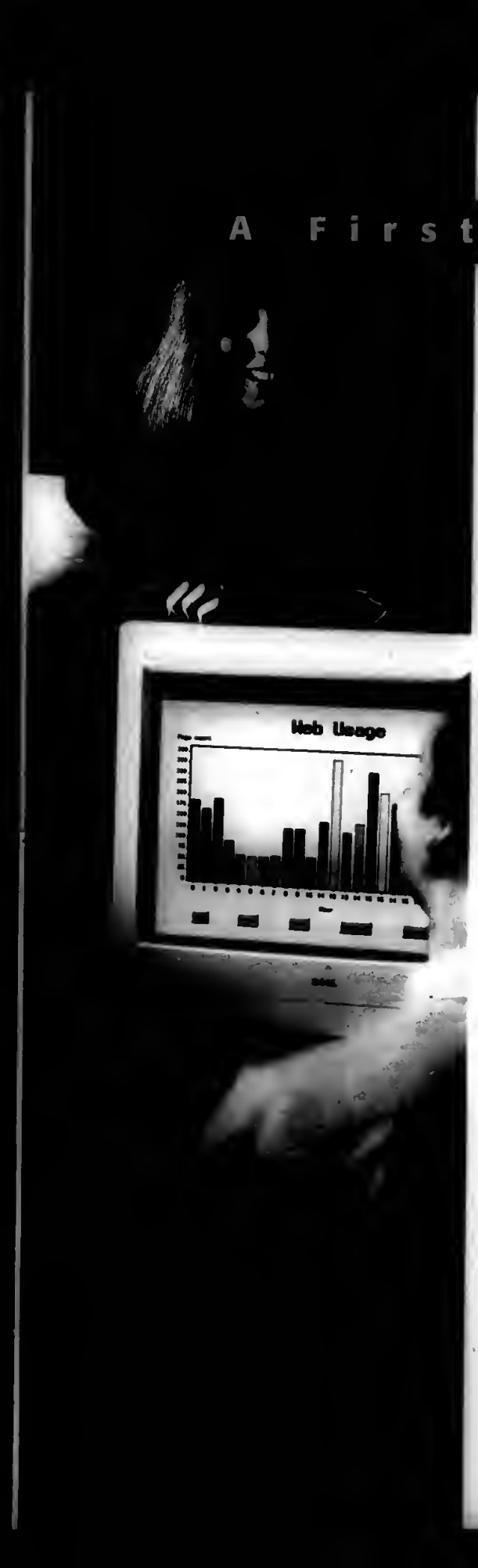

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Java promise years away

CONTINUED FROM PAGE 1

graphical user interfaces.

And slow performance is still an issue for transaction-heavy applications.

"I'm a practical guy and want to use the right tools for the right application," said John Jacobs, manager of retailer and field systems at Saab Cars USA, Inc. in Norcross, Ga.

Java is good for "keeping the file size small and painting screens quickly. We're getting close to 'write once, run anywhere,' but Rome wasn't built in a day," he said.

Indeed, it may be naive to expect 100% compatibility across all Java platforms, said Jeff Kinz, an analyst at International Data Corp. in Framingham, Mass. "There will always be differences around the edges."

CONTROL NEEDED

"The biggest drawback is you don't have complete control," said Joe Ahern, a technology director at Credit Suisse First Boston Corp. Performance on low-end systems also is a potential problem for Internet-based applications such as the Java-based Prime Trade electronic trading service that CS First Boston just launched, Ahern said.

Developers also said they are finding that some of Java's idiosyncrasies are fading with time.

"A year ago, we had to be creative about working around the things that weren't there yet like the lack of printing support," said Mary McReynolds, acting MIS director at Alain Pinel Realtors in Saratoga, Calif. "Now they've fixed the printing problems and a lot of the memory errors."

Yuval Lirov, a senior vice president at Lehman Brothers, Inc. in New York, agreed that there is still some work to do. "Java is not a perfect tool — yet," he said in his presentation at JavaOne.

Among the improvements needed, Lirov said, is support from Java Database Connectivity for the SQL 3 object/relational database management system specification. Sun executives acknowledged that some Java holes still exist.

A new version of the Java Development Kit is due this summer that will address some issues, such as the ability to incorporate drag-and-drop capabilities in Java applications across multiple systems. But there are some inevitable differences in how individual vendors implement the Java Virtual Machine (JVM).

"It's been difficult to port and tune Java to different browsers and platforms," acknowledged Alan Baratz, president of Sun's JavaSoft unit. "We're focusing on working more closely with the Java licensees" to help avoid some of those different implementations.

JVM RECONCILIATIONS

To help corporate information technology departments deal with dueling implementations, Sun this week announced Java JumpStart (see story at left). JumpStart essentially reconciles the differences among JVMs for Windows 95, Windows NT and Sun's Solaris operating system.

Sun also is beefing up support for developers with the first major overhaul of its developer program in a dozen years. Java developers will see improved services, online access to information and a single place to handle their queries.

"We've had some issues" with developers having to go to multiple Sun employees to get answers to questions, said Ed Zander, Sun's chief operating officer.

Sun also is working to improve Java's stability, performance and compatibility, Baratz said. The company is moving resources and people around internally to focus on those areas and will slow down its practice of pouring a lot of new features and functions into Java, he added. Sun will add key features such as support for multiple national languages, for example, but developing new features is no longer the focus, Baratz said.

Not all users agreed that Java needs substantial changes.

Guy Morazain, executive director of Ontario College Application Services in Guelph, Ontario, said, "If you really follow the rules, there's no problem. Where we've run into problems is when we've done things like use widgets that aren't 100% compatible because we were in a hurry. That's not Java's fault."

In fact, Morazain said, "of all the crazy things we've done," adopting Java is probably one of the organization's better decisions. □

Computerworld staff columnist Frank Hayes contributed to this story.

Jumping for JumpStart

Among the slew of development tools rolled out at last week's JavaOne conference, Java JumpStart especially caught the eyes of corporate developers.

The product ensures that different versions of the JVM can all get along, whether the underlying operating system is Windows NT, Windows 95 or Solaris. Support for other operating systems is expected with future JumpStart releases, Sun executives said.

JumpStart, which is being beta-tested by a half-dozen IT groups, will ship in May.

Included in JumpStart is a component called Java Activator, which is loaded onto individual corporate servers. Activator is a JVM that can be plugged directly in to other World Wide Web browsers. It comes in two flavors: a plug-in for Netscape Communication Corp.'s Navigator and an ActiveX component for Microsoft Corp.'s Internet Explorer. Activator overrides the browser's native JVM and replaces it with Sun's version of the browser.

When an application accesses a World Wide Web page with a Java browser, Activator checks if the desktop has a JVM for that specific version of Java. If not, the Activator downloads a piece of code to let the desktop machine function properly.

JumpStart costs $4,995 per server, plus a variable price for a services component that includes a skills assessment for corporate Java wanna-bes. Sun will negotiate site license agreements, company executives said. — Johanna Ambrosio

Vendor announcements stress Java ease

By Carol Sliwa

LAST WEEK'S JavaOne conference in San Francisco was a tools and software extravaganza for software developers anxious to find easier ways to build Java applications.

For starters, the host of the event, Sun Microsystems, Inc., released its Enterprise JavaBeans 1.0 specification, which ultimately will let developers create server-side applications from reusable software components.

Scores of other vendors, including IBM and Netscape Communications Corp., quickly pledged support for the new specification in future versions of their products.

Other major announcements at JavaOne included these:

- As expected, **Sun** announced a new suite of development tools in the upcoming Java Development Kit 1.2, its JavaStation network computer, and its JavaOS for Consumers, an operating system optimized for handheld computers, interactive televisions and Web phones.
- Suo announced Developer Connection, a program designed to simplify and consolidate the resources of all the company's existing developer programs. New features include an online service to aid individual developers, and added training courses.
- Sun also announced the JavaServer Engine, a reusable software component for network-based application development and deployment.
- Sun also chronicled plans to port PersonalJava, its Java platform for consumer devices, to Microsoft Corp.'s Windows CE operating system and posted its EmbeddedJava specification for review.
- **IBM** launched JCentral, a Web search engine for finding code, applets, JavaBeans, newsgroups, published stories and tutorial information about Java. As expected, IBM also announced the latest additions to its San Francisco Framework, which aims to speed the development of server-side Java applications.
- **Corel Corp.** unveiled its OpenJ technology, which was designed to help users with little or no programming experience create Java applications using JavaBeans components.
- **Borland International, Inc.** announced JBuilder 2, an updated version of its visual development tool line for building Java-based business applications. It will be available this spring.

Borland also announced VisiBroker 3.2, a new version of its Common Object Request Broker Architecture-compliant object request broker that was designed for creating, deploying and managing distributed Java and C++ applications.

- **Apple Computer, Inc.** announced technology that will let developers add QuickTime graphics, sound, video, music, virtual reality and three-dimensional capabilities to programs written in Java.
- **3Com Corp.** announced a Java-based "conduit development kit" that Java developers can use to create "conduit" programs that synchronize data between Palm Computing products and a PC, network or the Internet. □

Logo ruling not the last word

By Carol Sliwa

SUN MICROSYSTEMS, INC. may have scored a legal coup when a federal judge last week ordered Microsoft Corp. to stop using the "Java Compatible" logo on its products.

But Sun's "symbolic victory" probably won't have any significant impact on the Java community, observers said. And some analysts said the company may have potentially bigger issues to worry about, given accumulating evidence of a possible splintering of the Java licensee camp.

JAVA LICENSING

"I think everybody knows full well that Microsoft doesn't ascribe to Sun's view of Java, so if Sun's logo doesn't appear on Microsoft's products, I don't think there's going to be any shock there," said Ron Rappaport, an industry analyst at Zona Research, Inc. in Redwood City, Calif.

But because the judge's ruling is only a preliminary injunction, the eventual outcome of the case could cause a stir.

"There's a lot of big end-user companies that are thinking about how much of a commitment they want to make to Java," said David Folger, an analyst at Stamford, Conn.-based Meta Group, Inc. "If they feel Microsoft is backing off or getting forced to back off the Java business, they're going to be concerned."

Court case aside, a more significant dynamic is growing in the Java fields. Hewlett-Packard Co.'s plan to create its version of Java for embedded systems, such as printers and handheld computers, could be the latest sign of growing dissatisfaction with Sun's control of Java.

Several U.S. companies, including HP, Compaq Computer Corp. and Intel Corp., tried last year to block Sun's petition to standardize Java through the International Standards Organization (ISO).

Under the ISO-approved procedure, Sun retains final authority over Java.

"Maybe this HP move to diverge from the Sun standard will get Sun to wake up and be more cooperative with other vendors and possibly more inclined to share control," Folger said. "[Major vendors] think, 'Why should we have a key technology controlled by Sun?'"

Sun has given no indication it will take legal action against HP. Sun CEO Scott McNealy and HP CEO Lew Platt met more than once last week, according to one Sun executive.

Other Sun officials noted that the company is unlikely to even consider a suit until HP produces a product that can be tested against its Java license.

If HP does follow through, Microsoft will prove a thorn in Sun's side. The Redmond, Wash., software maker already has pledged to use HP's Java technology in future versions of its Windows CE operating system for small devices.

"I think we are all deluded into thinking that there is a single Java market," said Tim Sloane, an analyst at Boston-based Aberdeen Group, Inc. "You've got to step back and say the embedded system market is totally different than the high-end enterprise market, which is totally different than the [personal digital assistant] market."

"Each one of those markets," Sloane added, "has different attributes that are going to demand different things from Java." □

State of the Sun/Microsoft lawsuits

- **Microsoft has until April 23 to comply with the court's preliminary ruling ordering it to stop using Sun's Java Compatible logo.**
- **Sun and Microsoft are due back in court Sept. 4 for a case management conference.**
- **Sun's pending lawsuit and Microsoft's countersuit each charge that the other violated the terms of their Java contract.**

GM's Y2K task too big?

CONTINUED FROM PAGE 1

lem. The findings, released last fall, sent shockwaves through GM's senior management, according to one of the sources.

A spokesman for GM denied that the Deloitte & Touche report startled management. "Everybody has been aware of how much we need to get done here" for several years, the spokesman said.

Then there is the issue of how much GM is spending on its year 2000 problem. A $500 million year 2000 budget for a $177.7 billion (1997 revenue) company "just doesn't add up," said Lee Freeman, a consultant at Management Support Technology, Inc. in Framingham, Mass. Not when The Chase Manhattan Bank Corp., with $366 billion in assets, and Wall Street brokerages are spending $250 million to $500 million each on millennium projects "without shop floors that need fixing," he said.

The year 2000 project "is where we want it to be"

Executives at the Detroit-based automaker said the company can get the job done. GM's year 2000 project "is where we want it to be, but the task is extremely large," said Ralph Szygenda, GM's chief information officer, in a recent interview.

Consultants close to the company aren't so sure. "I don't think there's enough time" for the Big Three to get all of their respective year 2000 work finished, said Joe Bione, a consultant at Deloitte & Touche in Detroit, which is doing millennium consulting for GM and Chrysler Corp.

The automotive industry's supply chain "is like a big spiderweb," with automakers such as GM counting on thousands of interdependent relationships, Bione said. GM has relationships with 30,000 suppliers and conducts business in 190 countries.

Still, Bione said all three automakers, including Ford Motor Co., "are doing everything possible to lick the problem."

But even Szygenda acknowledges that year 2000 work is a tall order for a company that is trying to complete the project while simultaneously attempting to finalize its information technology management structure, implement common systems across its enterprise and apply technology to reduce cycle times and cut costs by hundreds of millions of dollars per year.

"We've got a lot of things to pull off," Szygenda said.

Daron Gifford, the top GM consultant at Deloitte & Touche, said the automaker has a "huge effort under way" but declined to comment on the technology assessment.

In its SEC filing, GM said it spent about $40 million last year for "preliminary efforts." GM also stated that it plans to spend the majority of the $360 million to $500 million year 2000 budget this year.

The company said it expects to have its remediation work completed by Dec. 31 to allow for a full year of testing.

One factor in GM's favor is that it tends to roll out common systems to its assembly plants, which should translate into fewer fixes for its shop floor, said Bill Swanton, director of research at Advanced Manufacturing Research, Inc. in Boston. □

Latest notebooks may offer more speed than users need

By Kim Girard

VENDORS WILL introduce the fastest available notebook computers with mobile Pentium II chips this week, but they may run into resistance from middle-of-the-road users who aren't sure they need the extra power.

The processor will be introduced, for most vendors, on a limited basis in select notebook models. IBM, Toshiba America Systems, Inc., Compaq Computer Corp., Hewlett-Packard Co., Digital Equipment Corp. and NEC Computer Systems will be among the vendors unveiling Pentium II machines at Intel Corp.'s mobile chip announcement this week.

NEC, for example, is packing the 233- and 266-MHz processors into its Versa 5000, priced between $3,000 and $4,000 to start. At 1.3 inches, the Versa is the thinnest notebook offered with the Pentium II.

Dell Computer Corp. is folding the Pentium II into its larger, heavier Latitude line: The 266-MHz model will have a 13.3-in. screen and start at $4,000; the 233-MHz model will have a 12.1-in. screen and cost about $3,500.

Most of the Pentium II notebooks will cost $3,500 and up, said Ken Dulaney, an analyst at Gartner Group, Inc.

PERFORMANCE BOOST

Intel promises a 30% performance improvement with the new processor, at almost double the power consumption, Dulaney said. Battery life isn't expected to be compromised because Intel's latest chips feature circuits that consume less power and generate less heat.

Most users won't notice much of a speed difference between a Pentium II and a 166-MHz notebook running Windows 95, Dulaney said.

"There seems to be a temporary hiatus with users' need for more power," he said.

On the other hand, high-end notebook users always want the fastest models. □

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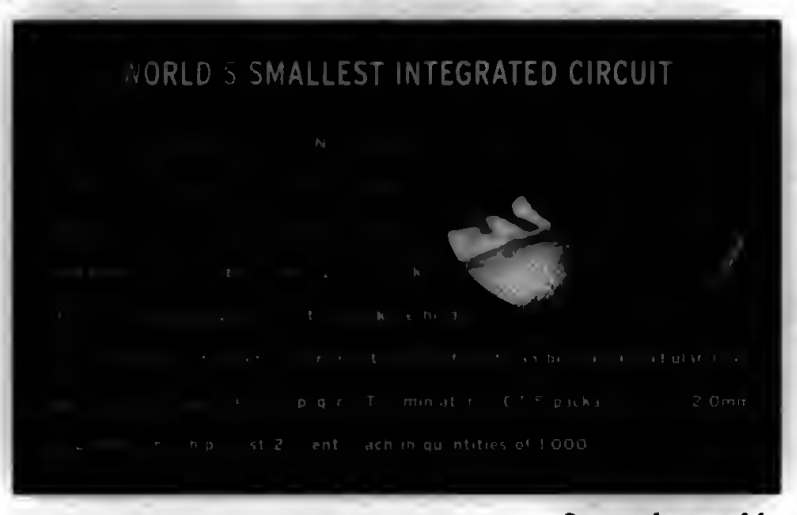

Crystal ball for hairlines

Bosley Medical Institute in Beverly Hills, Calif., uses a computer imaging system that simulates a customer's hairline if he undergoes hair-restoration surgery – and if he doesn't. It's a persuasive sales tool. The left image shows the client today, the middle image predicts the customers' future hairline without intervention, and the right image shows what can be achieved with various densities of hair grafts.

Chaotic signals add privacy

Chaotic fluctuations of the light intensity in fiber-optic communications would seem like a bad thing. But researchers at Georgia Tech, including Gregory VanWiggeren (at right), are developing a way to use optical lasers to mask private messages with "noisy" signals and then strip away that noise at the other end. More work is needed, but this could be an alternative to encryption.

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Average salary offered to computer science graduates:	$40,417
Cumulative time the average person spends waiting "on hold" per year:	60 hrs.
Average office space per worker at headquarters:	284 sq. ft.
Average office space per worker at computer centers:	261 sq. ft.
European businesses working to make their systems euro-compliant:	11%
European businesses aware of the euro problem:	50%
Robots shipped last year:	12,459
Macro viruses reported:	2,300

Sources: National Association of Colleges and Employers, Bethlehem, Pa.; Multimedia Telecommunications Association, Arlington, Va.; International Facility Management Association, Houston; Grant Thornton International, London; Robotic Industries Association, Ann Arbor, Mich.; Data Fellows, San Jose, Calif.

Inside Lines

Taking Gumby from a baby

So, just how big a mess is the current domain name registration system? Prema Toy wants rights to the domain pokey.org, saying it's part of the company's trademark for the Gumby and Pokey characters. So it has filed a complaint with InterNIC, the group responsible for registering domain names. The current holder of pokey.org is 12-year-old Chris Van Allen, nicknamed Pokey, whose site has nothing to do with the Prema characters. "I thought toy companies were supposed to be nice to kids," Chris wrote on his www.pokey.org site.

It works, it really works

Say what you will about Novell's shortcomings in the marketing area, but its latest NetWare 5.0 Beta 3 technology seems to work just fine. Novell used the beta of its next-generation operating system last week to run a 20,000-node network, connecting its Brainshare conference in Salt Lake City to the JavaOne conference in San Francisco. User attendees were lined up five-deep to log on to the "Connecting Points" network and check out the new native TCP/IP and Java enhancements. Nary a problem was reported all week, which is giving company executives high hopes for a bug-free delivery this summer.

Make mine free, please

One of the biggest announcements at the Brainshare conference was the price cut on Novell Directory Services for Windows NT from $65 per client node to $16 per node. The promotion lasts until July 31, after which the price will be $26 per node. But many users say they should get it free. What about it, Novell? "We will revisit the issue when NetWare 5.0 ships," said Chris Stone, Novell's senior vice president of strategy and corporate development.

Parlez-vous multiples?

When Hewlett-Packard and Electronic Data Systems last week announced that they had set up a new electronic store at the official Web site (store.francoy8.com) of this year's World Cup soccer game, Computerworld checked it out. Especially because they told us the electronic store was available in "multiple languages," and fans could purchase game stuff no matter "what currency they use." Imagine our surprise at finding that "multiple" languages meant only English and French and that the wide-open currency list includes only U.S. dollars and French francs. Sacre bleu.

Just don't tell Bill

Guess you really can't blame software vendors for running scared of Microsoft. Customers seem to, as well. At an IBM-hosted manufacturing seminar recently, our reporter asked the IS chief of a large multinational corporation whether he thought Microsoft was too powerful. After a long pause and much squirming, he finally whispered, "I am not anyone to say whether it is or not." Maybe he was afraid Bill would make him beta-test Windows 98.

Gotta have that ring

One forlorn-looking guy at this week's JavaOne developer's conference held a sign in one hand and a Sun bill in the other. The sign read, "Sell your java ring?" Someone quickly took him up on the offer because the rings, embedded with java chips, had been given away to all full-conference attendees.

Sun CEO Scott McNealy last week belied his G-rated all-American looks with a bevy of R-rated jokes. At the company's Java developer's conference, McNealy led his keynote speech with the top 10 pickup lines heard in the conference's computer lab. Among them: "Is there a back door to your system?" "I'll shrink-wrap my software if you want," "Personally, I'm totally plug-and-play," and "Anytime, anywhere, on anything. Oh, wait, that's a White House pickup line." Once you're finished groaning over those, think about sharing a few of your own quips or tips with Computerworld. *You can reach news editor Patricia Keefe at patricia_keefe@cw.com or phone her at (508) 820-8183.*

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Zoomed Video ready
Microphone and 16-bit stereo sound
20X modular CD-ROM drive
2-way infrared port
Touchpad pointing device
Modular floppy drive
Li-Ion battery
Mobile Software Solutions Pak
Microsoft® Windows® 95 and MS® Plus!
5-year/1-year Micron limited warranty

$1,899
Bus. lease $66/mo.

MICRON TRANSPORT XKE

233MHz Intel Pentium processor with MMX technology
32MB EDO RAM
3GB removable hard drive
13.3" TFT XGA display

STANDARD FEATURES
512KB pipeline burst cache
2 modular expansion bays
2 infrared ports, S-Video NTSC, game, USB ports
20X CD-ROM drive with AutoPlay™ technology
128-bit, 2MB DRAM graphics
CardBus and Zoomed Video
16-bit stereo sound and microphone
56Kbps fax/modem*
Pick-a-Point® dual pointing devices
Custom nylon carrying case
Microsoft Windows 95 and MS Plus!
Mobile Software Solutions Pak
Microsoft Office 97 Small Business Edition
Dragon NaturallySpeaking Personal voice recognition software
5-year/1-year Micron limited warranty

$2,699
Bus. lease $92/mo.

*Maximum transmission speed of up to 56Kbps when downloading data and 33.6Kbps when uploading. However, actual performance is dependent upon numerous factors and observed transfer rates may be less than the maximum potentials.

Micron TransPort portables start at $1,899

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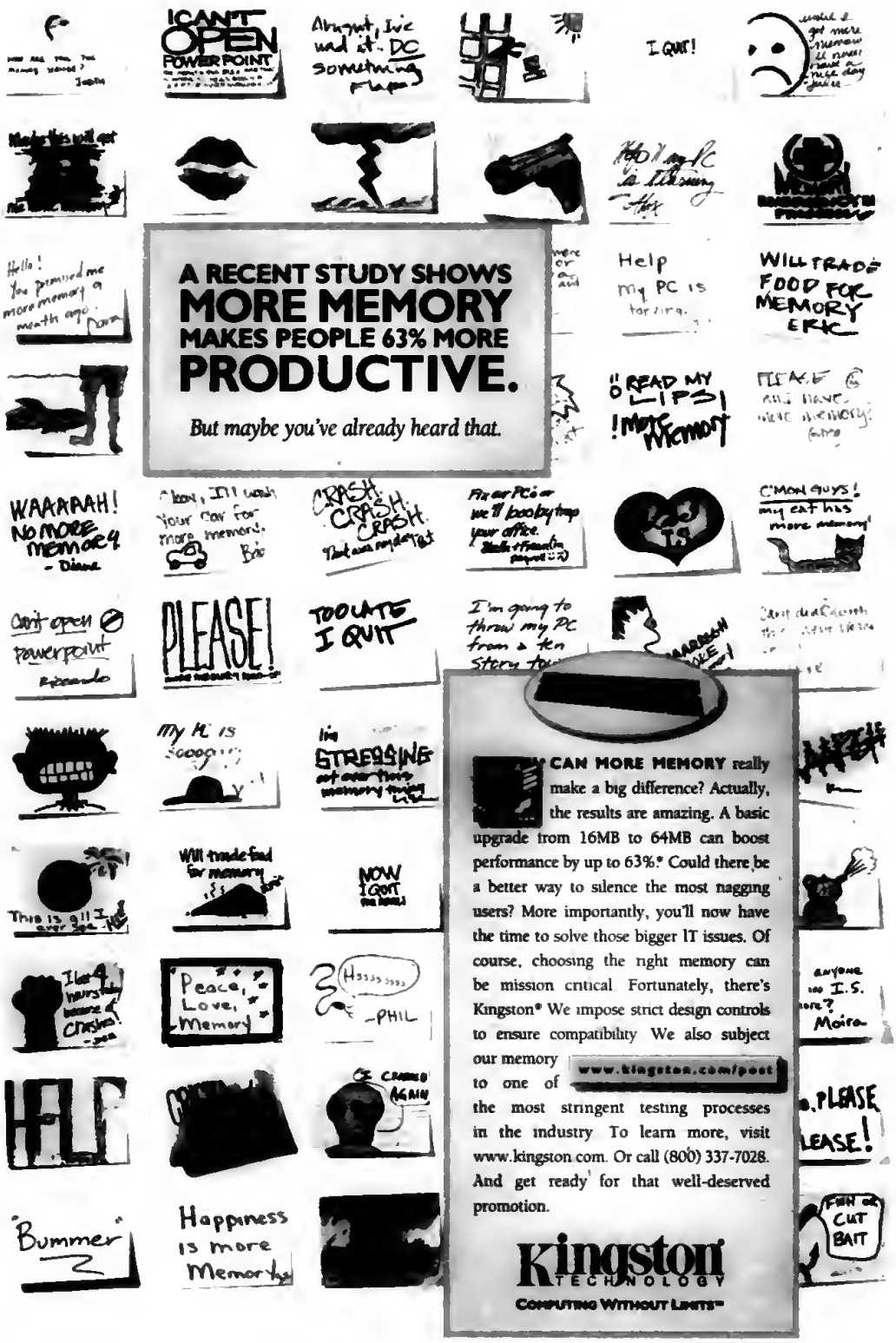
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